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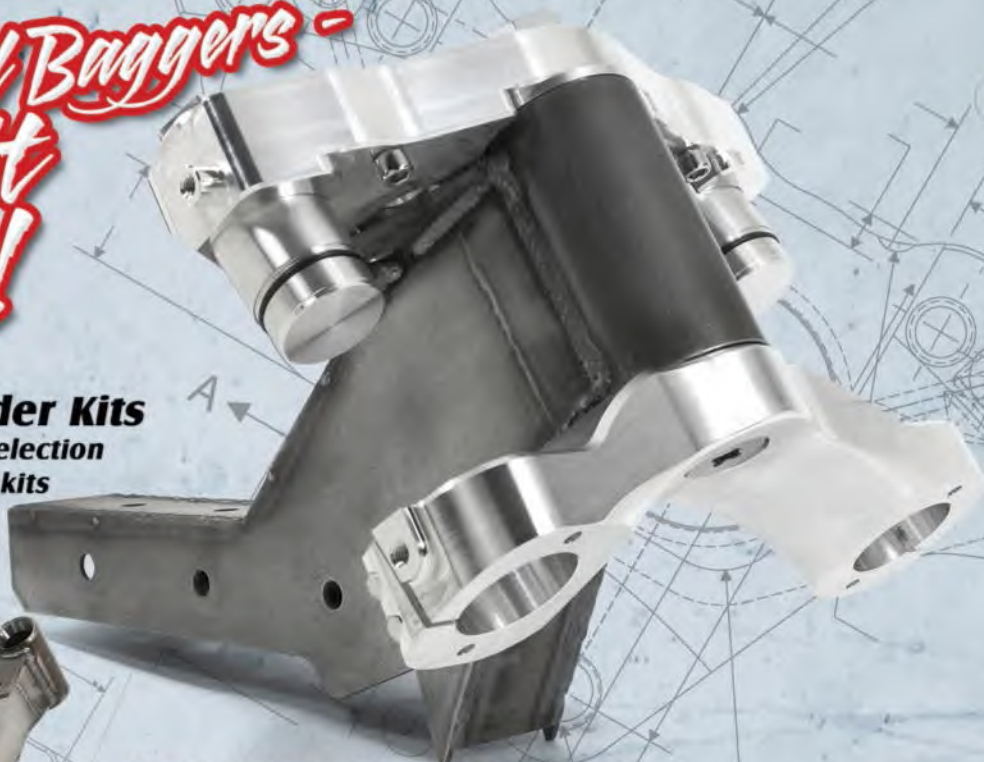
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Sturgis & American Motorcycles

THIS SUMMER MARKS THE 75TH RUNNING OF THE Black Hills Motor Classic, often referred to simply as Sturgis by many of us. Anyone who has ridden the Black Hills region of South Dakota knows

how amazing this area is. The wide-open ranges, the natural and man-made monuments like Bear Butte, Devils Tower and Mount Rushmore, and the fun honky-tonk towns such as Deadwood, Custer, and Spearfish make this part of America special.

There's something here for anyone looking for motorcycle adventure, especially during the first week of August when more than a half million motorcycle riders descend on the area.

If you attend the Sturgis rally this year, I hope you join us at the Buffalo Chip on Tuesday, August 4, for our free Indian & Classic American Iron Rally. Everyone is welcome to watch the fun, and riders of any Indian or pre-1984 American motorcycles are invited to participate in the free bike show and the accompanying field events. There will be plenty of amazing antique motorcycles on display and during the events, so bring your camera and friends. I will be there most of the day trying my hand at the field events on a classic motorcycle, so please join us and introduce yourself; I always enjoy meeting our readers.

Choices In American Iron

YOU AND I LIVE AND RIDE IN INTERESTING TIMES. READERS of *American Iron Magazine*, by definition, are interested in American-made motorcycles, and we have more American motorcycle options today than ever in our lifetime.

It wasn't long ago when many people felt that Harley-Davidson had become too comfortable in its "big cruisers for old men" niche. Many pundits predicted Victory was on a slow road to nowhere and Indian would be another in a long line of disappointments. Not so much now.

Harley leads the charge with aggressive marketing efforts (and machines like the Street and Dark Custom) that target younger riders, women, and minorities. I'm not privy to Harley's plans, so I'm curious where its Project LiveWire

electric motorcycle will eventually lead. I suspect electric motorcycling will grow in popularity over time as it makes a lot of sense. But to do so, electric motorcycle prices need to drop and battery technology needs to improve.

The two Polaris motorcycle brands are rather exciting, too. In general, it appears Polaris is moving the Victory brand into the performance realm and Indian motorcycles toward a more traditional direction. As we close this issue of *AIM*, Victory is teasing the moto-press with announcements of an electric race bike to compete at the Isle of Man road race — possibly the most dangerous and prestigious race in the world — and with another project that includes Roland Sands who will build a one-off gasoline-powered racer to take on Pikes Peak.

Since acquiring and relaunching Indian Motorcycle, Polaris has sprinkled the lineup with five Chief variations — the Classic, Vintage, Dark Horse, Chieftain, and the touring Roadmaster. Indian also launched the all-new 100 hp Scout last year. Not too shabby.

By the time you read this, the EBR (Erik Buell Racing) bankruptcy should be final. I've known and admired Erik since the 1970s, and send him nothing but my best wishes. He is a passionate man and talented engineer. Our sport would be a better

place with Erik building American sportbikes, and I hope he's able to beat the odds (something he has done more than a few times) and figure out a way.

Ride safe, ride smart, have fun.



BUZZ KANTER
Publisher/Editor-In-Chief, *American Iron Magazine*



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PHOTO BY JIM DOHMS

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TAKING AIM

Compression Ratios II

AS STATED IN THE LAST issue, boosting an engine's compression ratio will enable it to produce more power and build rpm (accelerate) faster, as well as increase its efficiency (fuel mileage). Not to mention giving it a great exhaust note!

And what owner doesn't want at least one, if not all, of these bonuses?

To feel any real change in power, you need to go up at least half a point (0.5) in compression. It's generally accepted that you'll gain about 4-5 percent more power the first time you bump the compression up one point, such as going from 9:1 to 10:1. However, the power gained going up another point, from 10:1 to 11:1, is about half of that, or 2 to 2-1/2 percent.

Twin Cams usually respond well to a 10:1 to 10.5:1 ratio. However, an adjustable performance ignition module should also be used. It's a generally accepted fact that this is a good compression for the street, with ratios above 10.5:1 and up to 11:1 being the practical maximum for a streetbike run on pump gas.

Another thing that must be considered when increasing a compression ratio is that a light bike, like a Sportster, Dyna, or most Softails, can handle more compression than a heavy bike, like a Road King or one of the other touring bikes, especially if it's loaded up. That's because of two issues: detonation and preignition, which are two of the drawbacks of increasing an engine's compression.

Detonation and preignition are



**To feel any real
change in power,
you need to go
up at least half
a point in
compression**

notorious for destroying pistons and other parts within the combustion chamber. During normal combustion, the spark plug fires and starts a flame that moves across the combustion chamber as it burns the air/fuel mixture in a controlled manner. Detonation, on the other hand, is the spontaneous and explosive ignition of the unburned air/fuel mixture before the spark plug fires. Detonation occurs when temperatures and pressures in the combustion chamber exceed the fuel's critical limit.

Preignition is when the air/fuel mixture is ignited by a hot spot in the combustion chamber before the spark plug fires. Hot spots are usually due to excessive

carbon or other deposits in the combustion chamber that, for one reason or another, have become much hotter than normal. However, some engineers consider detonation and preignition so intertwined they refer to them both as engine knock. These dangerous conditions are present if you hear a rattling or pinging sound coming from your engine when you open the throttle.

More about engine knock and other compression-related topics in a future issue.

See you on the road,

Chris

Chris Maida
Editor



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AIM In Sturgis

TO HONOR 75 YEARS OF BLACK HILLS MOTORCYCLING HISTORY AND TO pay homage to its Indian-riding founders, *American Iron Magazine* has teamed up with the Legendary Buffalo Chip to host the Indian & Classic American Iron Sturgis Rally 2015 on



Tuesday, August 4. This fun and free event is open to all classic American motorcycles (pre-1984) as well as all Indian motorcycles (new and old). Show classes will range from Antique to Radical Custom, and some of the motorcycles will be photographed and featured in *AIM* and our sister publication, *Motorcycle Rides & Culture*. Free field events will also be taking place, including the Slow Race, Just For Kicks, Plank Ride, Balloon Toss, and more. Show Registration begins at 9 am, field events start around noon, and trophies will be awarded at 4 pm.

A huge thank you goes out to our generous sponsors for allowing this to be a free event: Buffalo Chip, Dennis Kirk, GreaseRag.com, Kiwi Indian, Heather's Leathers, Jerry Greer's Engineering, Sturgis Vintage Cycles, and others.

As part of our 75th rally celebration, we're also organizing two free group rides, sponsored by Indian Motorcycle, to Sturgis. One starts at the National Motorcycle Museum in Anamosa, Iowa, and is led by Editor-In-Chief Buzz Kanter (three-day ride). The other one from Southern California and is led by Mike "Kiwi" Tomas of Kiwi Indian (five-day ride). As stated above, we'd like to invite all Indians, new and old, to join Buzz and Mike at the front of their respective packs. However, every motorcycle brand and age is invited to join in on the ride and take part in the fun pilgrimage to Sturgis.

For the most up to date information on the Sturgis show and rides, follow along on the *American Iron Magazine* Facebook page and visit AIMag.com.

Editor's Choice Show

THE BROKEN SPOKE WILL BE HOSTING THE 2015 EDITOR'S CHOICE BIKE Show on Thursday, August 6. There will be trophies for all the Editor's Choice winners and other class winners, prizes, and the opportunity to meet editors from *American Bagger*, *American Iron Garage*, *American Iron Magazine*, *Bikernet*, *Cycle Source*, *Hot Bike*, *Hot Bike Baggers*, *Street Chopper*, *The Horse*, *Thunder Press*, and *Urban Bagger*. Sign up is at noon with awards at 3 pm. There will be a party at the pool, as well as bike parking for the show at the pool. To find out more, go to BrokenSpoke.com.

Motorcycles As Art

THE STURGIS BUFFALO CHIP'S 2015 MOTORCYCLES AS Art exhibition presents famed photographer Michael Lichter's *The Naked Truth — 35 Customs/35 Years/Motorcycles Exposed*. This exhibition will lay bare the raw talent of 35 world-renowned bike builders, most of whom are building their creations specifically for this exhibition. Each of these rolling metal sculptures will be displayed exposed and naked, unencumbered by paint and graphics, atop elevated pedestals to give guests an improved open view from every angle. *The Naked Truth* is free to the public and will be open from 10 am to 10 pm, Saturday, August 1 through Saturday, August 8 in the Buffalo Chip's Russ Brown Events Center.



Freedom Celebration

IN RECOGNITION OF our nation's valiant veterans, the Sturgis Buffalo Chip has set aside Thursday, August 6, as its 24th annual Freedom Celebration. Part of the Freedom Celebration is the Freedom Celebration Ride, which departs from Main Street in Spearfish, South Dakota. All ride fees are donated to the Freedom Ride charities supporting veterans in need. Following the ride, the celebration will continue at the CrossRoads at the Buffalo Chip with a program by veterans and a catered reception. The Chip will also present the Bob Hanson Distinguished Service Award. More information can be found at BuffaloChip.com/Freedom Celebration.

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Bands At The Buffalo Chip

THE BUFFALO CHIP CONCERT SERIES WILL BEGIN ON FRIDAY, JULY 31, and run through Saturday, August 8. The campground will open for camping on July 3. Concerts are free for campers. Call 605/347-9000 or visit BuffaloChip.com for the full list of performers as well as times and stage locations. These are the headliners that have been announced as of this printing:

Saturday, August 1:	Alice Cooper, Five Finger Death Punch, Sweet Cyanide
Sunday, August 2:	Brantley Gilbert
Monday, August 3:	Godsmack, Dee Snider, Nazareth
Tuesday, August 4:	Lynyrd Skynyrd, Shinedown
Wednesday, August 5:	John Fogerty, Social Distortion
Thursday, August 6:	Styx, Buckcherry
Friday, August 7:	Def Leppard

Special Events At The Buffalo Chip

HERE'S A LIST OF SOME OF THE EXCITING SPECIAL EVENTS THAT ARE happening at the Buffalo Chip at this year's Sturgis Motorcycle Rally. For specific locations or to learn more about each event, visit BuffaloChip.com.

July 31-August 8:	Evel Knievel Thrill Show
July 31-August 1:	AMA Extreme Dirt Track National ATV Races
August 2-3:	Outlaw Truck and Tractor Pulls
August 3:	Legends Ride
August 4, 10 am:	Bear Butt World Record Attempt
August 4-6:	Seattle Cossacks Motorcycle Stunt and Drill Team
August 4:	Biker Belles' Reception
August 4:	Indian & Classic American Iron Rally
August 4:	Black Hills State University Jackets Ride
August 4-5:	TORC — The Off Road Championships
August 5:	Cycle Source Bike Show (Only if this is Editor's Choice)
August 6:	Freedom Ride
August 6:	EAGLE 75
August 6:	Rat's Hole Bike Show
August 6:	Aidan's Ride
August 6, 5 pm:	Doug Danger's Jump Attempt on Evel Kneivel's XR-750
August 6 & 7:	Nitro Nationals Hillclimb
August 7:	"The One Ride" Charity Reception
August 7:	Throttle Girl's Lakota Heritage Ride
August 8:	Unimotorcycle Drag Racing

Daily Fun At The Buffalo Chip

OF COURSE, THE Buffalo Chip will also be hosting its usual array of fun daily activities that all but guarantee you'll never have a dull moment at the Sturgis Motorcycle Rally. A few of the annual highlights include bikini bike washes, and the Miss Buffalo Chip Beauty Pageant. Do you need more? Dirt track races, helicopter rides, burnout contests, Victory demo rides, and the beautiful Freedom Fields displays and memorials offer plenty to keep any rally-goer happy. This is just a small amount of what goes on at the Chip; the entire daily schedule is available to download at BuffaloChip.com.



Biker Belles

THE STURGIS BUFFALO Chip's Biker Belles event will celebrate women and the role they play in shaping the culture, sport, art, and history of motorcycling on Tuesday, August 4, from 10 am to 2 pm at the Buffalo Chip CrossRoads VIP Center. The event is open to both men and women, riders and nonriders, and participants are asked to make a \$45 contribution to join the festivities. Reservations may be made by calling 605/347-9000 or visiting BikerBelles.com.

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H-D Offers Free Riding Academy To Military

ON THE FLIGHT DECK OF THE USS YORKTOWN, Harley-Davidson made the official announcement that it's offering all current and former US military free Riding Academy motorcycle training. The new Learn to Ride program, open to active-duty, retired, reservists, and veterans, began on Armed Forces Day, May 16, and runs through September 13. All stateside military can take advantage of this offer by visiting a Harley-Davidson dealer or going to H-D.com/MilitaryLearnToRide. Those currently deployed outside the US can also submit the Learn to Ride form by September 13 and will receive a voucher for free motorcycle safety training that is good through 2016.

Avon's New Road Hazard Warranty

AVON TYRES ANNOUNCED A NEW ROAD HAZARD warranty program offering free replacement of any new tire (excluding non-DOT-approved race tires) sustaining accidental puncture or impact damage. Simply complete the Avon Tyres Road Hazard Warranty form with the dealer at the time of purchase, and — should a tire become unserviceable as a result of qualifying tire damage, including punctures during the first 1mm of tread wear — a replacement will be offered at no charge. For details and to download the warranty brochure, visit AvonMoto.com/Tech/Road-Hazard-Warranty.



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J&P Opens In Sturgis

J&P CYCLES OPENED ITS NEW YEAR-ROUND facility at Sturgis' 1650 Lazelle Street in June. The motorcycle aftermarket retail giant's new Sturgis retail center will house a wide assortment of motorcycle parts and accessories, including exhausts, seats, windshields, saddlebags as well as leathers, gear, and other apparel items. Activities are planned for the rally. For more information, visit JPCycles.com.

Custom Scout Series

INDIAN MOTORCYCLE ANNOUNCED ITS SCOUT-INSPIRED CUSTOM SERIES, A chronology of the rich, near-century-long history of the Indian Scout motorcycle. Throughout 2015, Indian Motorcycle will unveil a series of custom Indian



Scouts designed and crafted by some of America's leading custom bike builders. Each motorcycle will be made to celebrate an important Indian Scout milestone or

achievement since its debut in 1920. Each of the custom Scouts will be accompanied by vignettes to share the legacy of the Indian Scout.

To kick off the series, Indian launched the custom Military Scout in a vignette narrated by actor Mark Wahlberg with other upcoming stories to come. Designed and built by world-renowned Klock Werks Kustom Cycles of Mitchell, South Dakota, the bike is a tribute to the company's nearly 100-year history of supporting the US Military and to celebrate Indian Motorcycle's partnership with USO. Watch the video by going to IndianMotorcycle.com.

Riding the Web

AMA Gets Women Riding

With a series of videos and expanded online content, the American Motorcyclist Association (AMA) is launching the AMA Get Women Riding campaign. The AMA Get Women Riding campaign includes a number of initiatives to continue the tradition of attracting more women to motorcycling. The videos are hosted on the AMA's YouTube channel at YouTube.com/AmericanMotorcyclist. For more information, visit WomenAndMotorcycling.com. AIM



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Educational Winds of Change

CHANGE IS GOOD. AT LEAST SOME PEOPLE FEEL that way. Other folks? They'll beg to differ, especially if the change causes a shakeup in the status quo.

During the past few months, some significant changes took place within the motorcycle rider education community that affect the status quo in how new riders receive their safety training. Perhaps the most notable change took place in California where Lee Parks' Total Control Advanced Riding Clinic was awarded the contract for the California Motorcyclist Safety Program that's administered by the California Highway Patrol.

The Total Control program is basically a fusion of the Idaho STAR curriculum (the acronym stands for "Skills Training Advantage for Riders"), and information that Parks' team has gathered from 15 years of instructing intermediate and advanced riding courses. Moreover, both of these organizations stress mental preparation as much as teaching riders the basic skills of riding. In fact, Idaho STAR states that its goal is "to prepare riders at every level of experience with the skills and knowledge for safe riding." Keyword is "knowledge."

On a more national level, there are upcoming changes concerning the Motorcycle Safety Foundation's (MSF) Basic RiderCourse, too. The change includes an updated curriculum for both classroom and range exercises. Some states have already implemented this newer program. So what does all this mean for the motorcycling community?

First of all, let's be up front: teaching a new rider the basics of motorcycling isn't a major challenge. No matter what program is used, there are limited ways to present information that teaches basic skills for operating a motorcycle. For the most part, any person possessing a basic sense of balance, coordination, and mental retention can learn the primary skills necessary to control a motorcycle. It's the mental side of the educational equation that may be most important, helping riders realize that there's more than just twisting the throttle to be a proficient rider. Statistics and safety studies show that riders with basic rider-training experience have better odds of not becoming a fatality

compared to riders without such an education. On the whole, I firmly believe that rider education works for new riders — but only up to a point.

And that point is the mental processing side of the education. By "mental," I'm referring to the thought process that's part of the riding experience. Some studies indicate that as

many as 75 percent of reported motorcycle crashes are either fully or partially the fault of the motorcyclist. That's an alarming number. Perhaps with proper mental preparation by all riders, 75 percent of all crashes could be avoided. Simply, proper mental training taken during new rider courses would prepare riders for what awaits them down the road in both a literal and figurative sense.

Whether we're new riders or experienced riders, it's important to remember that having experience isn't the same as having proper training. Like everything else within the science of learning, there's a theory side and a practical side to consider. Experience would go under the theory portion, while rider skills would be the practical side. Understand, though, that you need both to make the science work. Many rider safety organizations like Total Control and Idaho STAR and the acclaimed MSF course are combining both aspects of theory and skills into their curriculum, but

what about the major portion of the riding community that's already rolling that doesn't go through an educational process? This, I believe, is rider education's biggest challenge: how to reach those who "know how to ride," so that they understand the importance of mental preparedness, too.

No biker likes to think that he doesn't ride well; many of us believe we're safe riders. Yet wouldn't it make sense that improving what we know could help us even more to survive the hazards of the roadways? Yes, there's change on several levels of rider education that, in the long run, will benefit future motorcyclists. But what good are those changes if we turn our backs to the wind of change for experienced riders? Personally, I would much rather ride into that wind of change to keep learning and to do all I can to protect myself and especially my passenger than to ignore it. Ignorance is not bliss when it comes to motorcycling; ignorance can hurt you. The direction of future statistics relating to crashes depends on all riders. Which way will you let the wind take you? **AIM**



**Ignorance is not bliss
when it comes to
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777

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Dawn Of A New Age

AT THE RISK OF SOUNDING LIKE MY FATHER, I submit: the youth of America today seems to be a completely different breed than the youth of my generation and those that came before me. Of

course, there are the cultural differences in fashion and entertainment and so on to be expected — remember how embarrassing it was if your underwear was visible to the general public? — but there seems to be a fundamental lack of *something* in today's kids. Not all of them, mind you, but some kids today just seem more entitled and comfortable with mediocrity. And with that mediocrity, I fear for the future of motorcycling.

In the course of a year, I attend many motorcycle rights conferences, and one thing has become clear to me: the ages of attendees skew largely to the 50-plus age range. As a 40-something biker, I was one of the younger persons at a recent conference, and the next youngest attendee was 14 years old. That's a pretty big age gap. Nick Jr., the 14-year-old, was attending with his parents to learn about motorcycle rights because he's poised to get his street license this summer.

So why is age relevant? Well, whether you prefer to ride with or without a helmet, ride in groups or ride solo, run loud pipes or use apehangers, the government has the ability to take away what, when, and where you ride. And the rank and file of voting-age riders is being depleted.

As riders, we have a responsibility to defend motorcycling. Realize that most of the country thinks that we're crazy for riding motorcycles. I have a friend who's a nurse, and she and her colleagues call motorcycles "donor cycles," in morbid reference to the usable organs that they harvest from deceased motorcyclists. Riding a motorcycle with handlebars that are over your shoulders, not wearing a helmet, and smoking a cigarette at the same time seem completely at odds with the general public. But the most hazardous part of that scenario is probably smoking the cigarette. But to the general public and the government, we're a danger to ourselves, so we need to be taken care of by members of our ever-vigilant society. And they will do that by changing laws that require motorcyclists to conform to a government-prescribed style of riding. As freedom-loving motorcyclists, we're charged with

keeping that from happening. We're the guardians of motorcycling, but the number of guardians is shrinking.

We need riders to stay engaged with their government so we can stand up to ill-conceived laws. Given the opportunity, the government will crank down the regulations on what motorcyclists can and can't do. Take this for instance:

the town of Yarmouth, Massachusetts, recently proposed banning group rides "in or around Yarmouth." What would you do if your town or city proposed such an ordinance? Sit idly by, shrug your shoulders, and go back to watching *Gilligan's Island* reruns?

Probably not. Unfortunately, folks tend to adopt a "they can't do that" mentality when, in truth, they (the government) can.

Moreover, there's an existing framework of organizations that defends motorcyclists on a daily basis, among them the Motorcycle Riders Foundation (MRF), which stands up for street motorcyclists and their rights. You probably have an MRF chapter in your state. If you do, you should get to know its members. Our

aging population of defenders means that we have fewer and fewer boots on the ground with each passing year.

Other potential problems are that the federal government funds motorcycle-only roadside checkpoints, local municipalities propose bans on motorcycles from riding through town, or society as a whole views motorcyclists as my nurse friend does: organ donors. Had no one shown up in Yarmouth to push back the proposed group-riding ban (thanks, Massachusetts Motorcycle Association), the proposed law would likely have passed. If concerned bikers didn't push back on the motorcycle checkpoint funding, we would see more spending on those roadside debacles than has already happened. We must support groups like the MRF so we can continue to push back. But we need new enthusiasts to help follow through. Recruiting younger riders and informing them of the danger that riders' rights face today is paramount to the survival of our industry and sport. The option is mediocrity, something we don't want.



We're the guardians of motorcycling, but the number of guardians is shrinking

Editor's note: Jeff is the VP of government relations for the MRF and serves as its lobbyist. He is responsible for informing and coordinating action with regard to legislation, executive action, or judicial decisions that affect motorcyclists on both state and national levels. Follow Jeff on Twitter @jeffrey_hennie.

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Bringing Clara Home

I CAN'T IMAGINE HOW IT MUST HAVE FELT TO BE Clara Wagner, who was among motorcycling's pioneer women riders. She was truly ahead of her time, riding motorcycles when many women never gave it a thought.

Clara's father, George, had already found success as creator and owner of Wagner Motorcycle Company in St. Paul, Minnesota, so it's little wonder that his daughter showed such interest in riding, too. His design has many unique features not found in other motorcycles of the time. For example, Wagner bikes utilize the loop frame as part of the exhaust system, a feature that he patented in 1902. This concept places the motor unusually low in the frame, which the company boasted would help keep engine heat away from the rider's legs.

In all, Wagner Motorcycle Company produced approximately 8,500 motorcycles, 4,000 of which were used for delivering the US mail. However, Wagner's success was short-lived as sales dropped dramatically in 1914 before he ultimately sold out to the Motorcycle Accessories Company.

Clara Marion Wagner was born on November 11, 1891, and by her teen years, George encouraged her to ride motorcycles, prompting him to develop a special drop-frame ladies' model. By the time Clara was 15 years old, she gained her FAM (Federation of American Motorcyclists) motorcycle license, the first woman to do so. The FAM was formed in 1903, and by 1909 boasted more than 3,000 members. Possessing a license was a huge feat for such a young woman.

Clara would go on to become one of the most famous women motorcyclists, too. She was daring and ready for any adventure. One such challenge began on the morning of October 7, 1910, when an excited 18-year-old Clara took off on a 395-mile FAM endurance run from Chicago to Indianapolis. She rode a 4-11 Wagner motorcycle (the 4 indicates the horsepower of the 1911 model motorcycle). Although Clara had ridden this motorcycle less than 50 miles, she was an able and competent rider with a fair

degree of mechanical knowledge, handy if things broke during the long-distance ride. She figured she could average 19 mph on the country roads, which she did, earning her a perfect score. It was good enough to defeat many of the male competitors.

Despite Clara's amazing performance in the endurance run, she was refused a trophy because she was a woman. In protest, 50 of her fellow riders chipped in to award her a gold medal anyway. Even though the FAM denied her credit for the race, she earned the distinction of being the first woman to win a competitive motorcycle event in America. She later was featured in ads for Eclipse Coaster Brakes, probably making her one of the first women to endorse a motorcycle product and appear in advertisements.

I've always had a keen interest in Clara. Back in 2009 while I was doing research for my book *The American Motorcycle Girls, 1900-1950*, I was fortunate to get in touch with Clara's two daughters, Lucy and Dorothy, both in their 90s. They shared stories of their adventurous mother who taught them so much about living life to its fullest. Clara had told them about her race in 1910 and that the roads were unpaved and rough with mud, sand, chuckholes, and rocks. On several occasions, she was unable to anticipate deep potholes that threw her off the bike, over the handlebars, and into a mud hole. Even so, she pushed on to finish the race with that perfect score.

Recently, I attended the E.J. Cole Collection motorcycle auction in Las Vegas. My heart skipped a beat when I spotted an original-condition 1911 Wagner, model 4-11, exactly like the one Clara rode back in 1910 from Chicago to Indianapolis. It even had the original three-year 1912-14 Minnesota license plate, and there was a key in the toolbox! I tried to conceal my excitement. I've never seen a Wagner like this for sale and probably never will again. I bid and held my breath ... a few bids went by, and I bid again as high as I could go. To my delight, the auctioneer lowered his gavel and yelled the familiar "Sold!" I couldn't believe it. I was so happy "Clara" would be coming home with me! Who knows, maybe this was even Clara Wagner's actual motorcycle. After all, it has a Minnesota plate on it! Now, wouldn't that be something? **AIM**



Clara would go on to become one of the most famous women motorcyclists, too

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THE JOY OF MOTORCYCLES After Sunday lunch with my son and his family, my granddaughters Laela, Jaeda, and AJ dashed out to my scooter for a little kickstand tour on my Road King. It brought to mind the joy of motorcycles that maybe a lot of us have let fade over time.

CHUCK DOYLE
The Colony, TX

33 YEARS AND 175,000 MILES We refer to it as "Old Blue," but that's not its name. It has no name. As my wife, Suzanne, points out, I wouldn't give a name to my arm or leg since they are part of me.

I bought this early 1978 FXS in 1982 in Torrance, California. Right away, I had to paint it, chrome it, and make it

pretty. Over the years, I've updated things as they wore out. It has Andrews tranny gears, a JIMS valvetrain, Crane ignition, Wiseco pistons, and S&S Cycle heads, rods, and cam. At its heart, it's still the FXS I bought over 30 years ago. I'm from a time when if you could not find or buy a part, you made it, so there's some of that in there, too.

We welcome letters on any subject, whether we agree with the writers or not. Electronic letters, both with and without photos, can be e-mailed to Letters@AmericanIronMag.com. Photos should be high-resolution, JPEG images (at least 300 dpi at 4" x 6"). Please also include your name, address, and a brief description of each photo. And although we reserve the right to edit, shorten, or change your letters so they make no sense at all, we do promise not to mess with your images. That means no phony mustaches, tutus, etc. (However, we may slip an issue of *American Iron Magazine* into the photo somewhere.)

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Russ Brown
Chuck Koro *Jim Rong*

WE CARE

Russ was inducted into the Sturgis Motorcycle Hall of Fame, the only attorney ever to receive this honor. His commitment to the motorcycle community resulted in "BAM" (Breakdown Assistance for Motorcyclists), a FREE nationwide volunteer program of 2,000,000 riders helping riders everywhere in the U.S. We go the extra mile for our clients and our friends. Our business model is built on relationships and trust.

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I recommend Russ Brown Motorcycle Attorneys highly as they were fast and efficient when I needed them most. They fully appreciate riders' needs as they ride and understood my situation fully. I have no regrets and am very happy with the outcome. When the unthinkable happens, it's good to have them on your side. I wouldn't consider anyone else, neither should you.

”

-Thank you,
Rick Rademacher

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I've told the family they can bury this one next to me when I go.

TOM UNGER
Virginia

DON'T MESS AROUND WITH SLIM I've been riding since the 1970s and love your mag! My latest bike is a



2014 Softail Slim.

JOHN DALEN
Napa, CA

BATTERIES Regarding Tracy Martin's article on batteries (issue #323), I know you know that there were stock motorcycles produced within the past 70 years that don't have a battery. My 1965 Harley-Davidson Sportster XLCH for one. My old XLH did have one, however. Most British bikes of the era really didn't need one ... well, that's

another story. Thanks for allowing me to vent (pun intended).

SAM BURNS
Via Internet

SPRING FEVER

A family that springs together stays together! My wife, Tracey, and I ride a



Cross Bones, and my son rides his 1974 Ironhead. A recent relocation from Toronto has put us into the hot, balmy Florida weather, which allows us to enjoy the Harley experience on our bikes all year round. Thanks for a great magazine.

GLEN MUIR
Florida

PROPS TO CANNON-BALL RIDERS

Buzz, I just felt I needed to comment on the condensed diary of your Cannonball ride. After reading about all of the mechanical issues that you guys dealt with, not to mention the weather, I realize I wouldn't

have been tough enough to be a long-distance rider back in the 1930s and '40s. My dad had four H-Ds back in those days (flatheads and Knuckleheads) and rode from Saskatchewan to Vancouver Island and then to Ontario. That was when many of the roads were horrendous by today's standards. I ride a 2009 Road King, and a 400-mile day is pretty much my comfort zone. My hat's off to you and all your co-riders for even completing that ride (and doing it more than once). Without



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TIM JANTZEN

North Vancouver, BC, Canada

MINE, ALL MINE!

My 2009 Heritage Softail rocks a custom snakeskin paint job and seat. It's



based on stingray and elephant leather. I had a blast making this one mine.

JOHN DOBBS

Schiller Park, IL

MY HARLEY'S NEW LOOK Like way too many of us, I wasn't riding my 2004 Road King Custom as often as I'd



like. So last month, I switched out the beach bars for 14" apes, a 21" RC Components Helix wheel, removed the bags, and added a little chrome. I love its new look, it rides sweet, and I'm enjoying being back on the bike in the Arizona sun! Keep writing a great magazine. I look forward to it every month, and it helps get my butt back on my Harley.

STEVE HAWES

Via Internet

JOIN THE FIGHT Kudos to Jeff Hennie for his very informative piece in issue #321 about the attacks from all directions (government, insurance industry, etc.) in regards to the rights of motorcyclists. I hope everyone who reads *American Iron Magazine* took the

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time to read that very important one-page article. The only thing that I believe was lacking in Jeff's advice to "join the fight" is the suggestion to also join the American Motorcyclist Association (AMA). Like Jeff's organization, the Motorcycle Riders Foundation (MRF), the AMA works tirelessly to protect our rights and to inform legislators and state and municipal officials about why their ideas to "improve" motorcycling are wrongheaded disasters. While I don't have the data to back up what I'm about to say, it's my belief that we owners and riders of V-twin, American-made bikes are underrepresented within AMA membership. We need to change that because we, as a group, are more often the target of attacks on motorcycling than any other segment of motorcycling (exhaust noise restrictions, mandatory helmet laws, etc.). Every new member of the AMA makes us stronger. Yes, indeed, as Jeff says, "join the fight."

RANDY GLEASON
Missouri City, TX

HAPPY MILE DAY My bikes reached big milestones this summer. My 1993 FXR (which was a Reader's



Ride in a 2008 issue of *American Iron Magazine*) turned 150,000 miles in October. The 2002 Road King, which I bought in November 2008 with 6,600 miles on it, turned 100,000 miles. Needless to say, the Road King has been ridden a lot more in those six years than the FXR. At 73, comfort seems to outweigh the fun factor.

LARRY STRACK
Middleburgh, NY

TRIBUTE & US MOTO GIRL When I saw that the article in #322 entitled



Tribute Sportster: A brother's vision comes to fruition was written in memory of Kenny Booth, I was really moved. Eden is my hometown. The article was amazing not just because we get to see a vision come to life, but because we know that everyone involved around town brought this bike back to life; that's really special.

I want ya'll to check out this pretty lady on my stepdad's 1975 Shovelhead! She's my mom, Deborah Donovan, and she and my stepdad have been riding for years. My mom is an American motorcycle girl like the lovely Cris Sommer Simmons! They have a lot in common. I plan on going down to Daytona to go to school at MMI (Motorcycle Mechanics Institute), so wish me luck! I just want to say thanks for keeping *AIM* coming. Ride free, everyone!

STEVEN L. SHOCKLEY
Wentworth, NC

HARLEY & VICTORY In #323, I wholeheartedly agree with Donny Petersen. I've been riding H-Ds for a long time (since 1985), but it feels like there's this misconception on the part of The MoCo and the dealerships that I owe my loyalty to Harley. Don't get me wrong, I still love my Harley; I have the tattoo, and the T-shirts and all that, and at one time they were the only American motorcycle company out there with any chance of surviving

in the long haul. This isn't the case anymore. Victory is gaining in popularity (and cost less), and the new Indians look awesome and (with Polaris' financial backing and all the great reviews) look like they have a fighting chance, too. I have to admit after riding Harleys for 30 years, it may be time to seriously give those guys a chance.

STEVE GENTRY
Via Internet

AIN'T SHE A BEAUTY? I've got a beautiful bike. The pipes are Vance & Hines, the air filter is from K&N, and

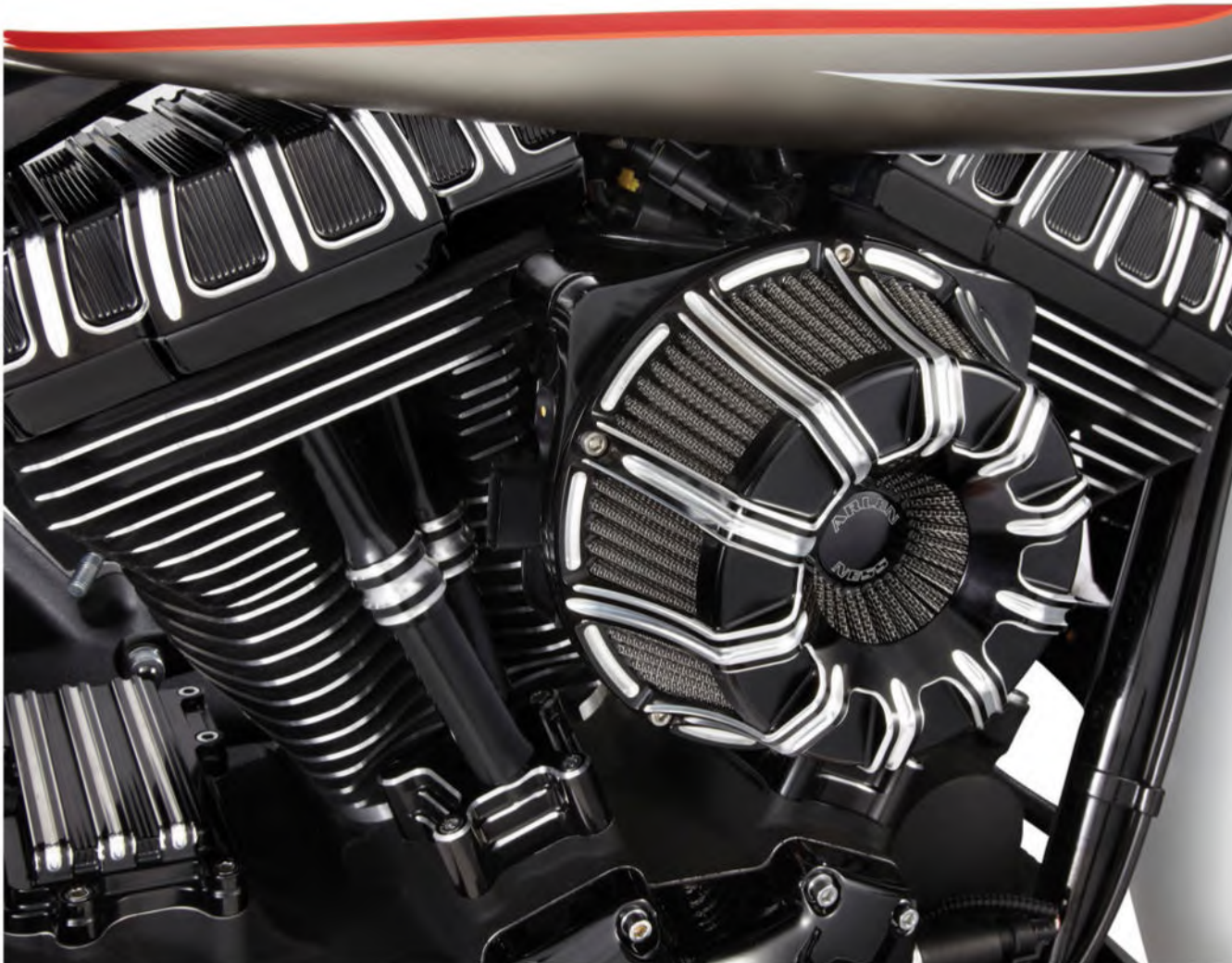


the bars and risers are Wild 1 Chubbys. It's a 2010 Harley-Davidson CVO Softail.

BOB GARZA
Mahwah, NJ

FINAL BIKE IS VICTORY I really liked Donny Petersen's Harley & Victory articles in issues #323 and #324 and the Safety Skills column in #324. Donny's articles, in particular, I found to be really fascinating. I've wanted to try a Victory motorcycle for a long time, and I have even talked with Rick Fairless in the past about it. I've been riding for over 40 years, and so much of what Donny wrote just resonated with me. I love Harley, but I'm ready to move along and have Victory be my final motorcycle. Like Donny mentions, I'm not afraid to separate myself from everything I've been programmed to believe over the years.

DONNEY PENA
Via Internet
AIM



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TRIKE KITS

How to go from two wheels to three

WHY WOULD ANYONE CONVERT A TWO-wheel motorcycle into a trike when new factory-built Tri Glides and Free-wheelers are available? In some cases, riders want the stability of three wheels without going to the expense of buying a new motorcycle. A few Sportster, Softail, Dyna, and V-Rod owners may want something the factory doesn't build. Whatever the reason, a number of aftermarket manufacturers produce trike kits for riders who want to make the transition from two wheels to three using a motorcycle they already own.

Added Weight

THERE ARE MANY ASPECTS OF CONVERTING A BIKE TO A TRIKE that must be considered before a rider chooses a kit. One important factor is weight. Adding a rear axle with its differential, another wheel and tire, a fender, lights, and suspension components adds weight. Some kits feature a body with an enclosed trunk, which adds more weight. An electric reverse also increases the bike's weight. Adding weight affects acceleration and fuel consumption.

Brake Systems

ADDING WEIGHT ALSO CHANGES THE BIKE'S STOPPING ABILITY. Some trike kits use a single brake rotor and caliper near the differential. Proponents of the single rear brake point to its

economy and simplicity. Many trike kits feature a brake rotor and caliper at each rear wheel. Although a brake at each rear wheel adds more brake lines to the hydraulic system and increases the unsprung weight at each rear wheel, the presence of two rotors results in greater brake pad contact area and improved braking. Advocates of kits with two rear brakes also claim rotors and calipers located near the wheel's hub will be less prone to overheating because of better airflow at the wheel.

Anti-lock brake systems (ABS) and linked brake systems present a challenge for trike kits. Late model bikes with ABS use a speed sensor at both wheels. Factory-built Tri Glides and Free-wheelers have linked brakes but lack ABS. What happens if a trike kit is installed on a bike that has ABS? First, you won't have ABS on the rear wheels. Second, the removal of the rear wheel speed sensor may result in a trouble code indicating a problem in the ABS circuitry. A serious trike kit customer should ask plenty of questions before buying a kit. If a kit manufacturer claims to have an ABS compatible rear brake, politely inquire how this is accomplished. Just for comparison, Harley-Davidson's 2015 Tri Glide and Free-wheelers don't have ABS.

Suspension Systems

MOST TRIKE KITS HAVE REAR SUSPENSION that falls into one of two categories: fixed axle or independent. When one of the wheels on a fixed axle moves up or down while going into a pothole or over a bump in the road, the end of the axle also moves vertically. The middle of the axle moves up and down because the axle is pivoting on the center of the other wheel. Shock absorbers and springs dampen this movement to provide a smoother ride.

Independent suspension systems

This Sportster trike kit from Frankenstein Trikes uses a rigid axle and contains all the parts you need to convert a XL model to a trike. Frankenstein Trikes also offers kits for many other Harley models.



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(ISS) allow each rear wheel to move up or down independently of the rest of the rear axle and suspension. An ISS uses four universal joints or CV joints and two half axles to drive the rear wheels. On either side of the differential there's a universal joint or CV joint. At each wheel hub there's another universal joint or CV joint. A half axle connects each pair of joints, the result being that either wheel can move up or down with a minimal effect on the differential and the other wheel.

Shock absorbers are used between the arms that support the rear wheels and the trike swingarm to complete the rear suspension on many trike kits. Some trike kits borrow a bit of automotive technology by incorporating an anti-roll bar (sometimes called a stabilizer bar or sway bar) into their suspension. The purpose of the anti-roll bar is to limit body roll while going around curves and corners. The anti-roll bar is fastened to the frame around the differential at two points and is cushioned by rubber or polyurethane bushings. The ends of the bar are connected to the moving parts of the suspension near each rear wheel through more bushings. If one wheel tries to lift while going around a curve or corner, its vertical movement is limited by the anti-roll bar because the bar would have to twist or bend.

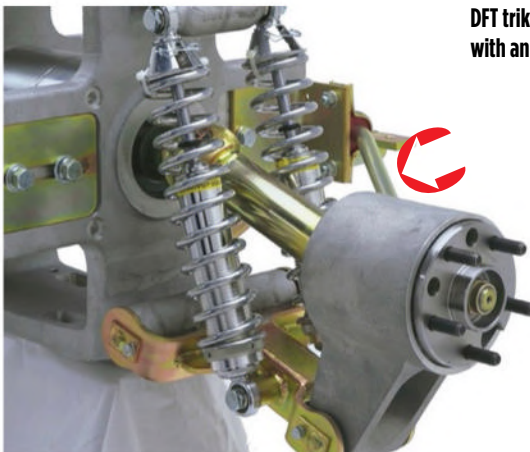
A few critics of anti-roll bars claim the bar defeats the purpose of independent suspension and contributes to a harsher ride. Proponents of anti-roll bars point out that the enhanced stability provided by the anti-roll bar more than offsets a bit of stiffness in the suspension.

Triple Trees

EXCEPT FOR THE TILTSTER FROM MYSTERY Designs, trike riders don't lean into turns; they steer with the handlebars. Many trike kit manufacturers recommend installing a set of raked triple trees on the front end to alter the front fork's rake and trail in the interest of easier steering.

Exhaust Mods

SOME TRIKE KITS PRECLUDE THE USE OF a stock exhaust system. Think about it for a moment: there's a differential where the rear tire used to be and an axle is near the former location of the mufflers. Riders of bikes equipped with



DFT trikes feature an independent suspension system with an anti-roll bar (arrow).



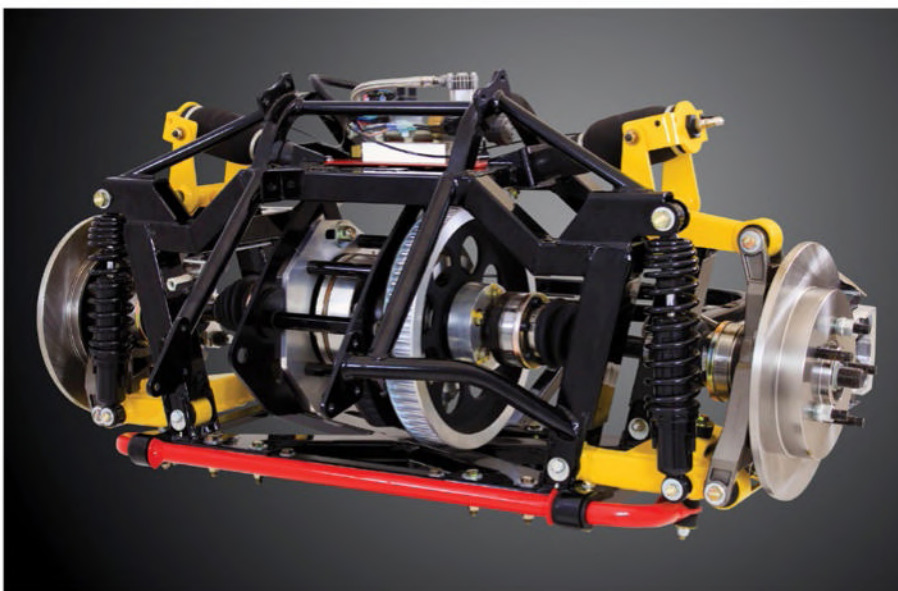
A mechanical reverse like this one from Champion Trikes was originally developed for sidocar use and bolts to the right side of the transmission.

catalyst mufflers need to be aware of this to avoid running afoul of vehicle emissions laws in some states. Trike kit manufacturers are aware of this situation and can suggest aftermarket mufflers or provide adapter pipes that route the end of the exhaust system below the rear

axle. Some trike kits do not require any exhaust system mods, while others only need a short (about 6") extension to get the stock exhaust setup beyond their trike kit. It depends on what model bike you're converting to a trike.

Body Kits

MANY TRIKE KIT MANUFACTURERS OFFER enclosed lockable trunks on their body kits. Some trunks can be equipped with optional padding or carpeting and a few offer a courtesy light. Storage capacity depends on the model being converted to a trike and the body kit selected. One of the dimensions that affect storage capacity in a trike trunk also affects stability. Track is the distance between the center of the tread on one of the trike's rear wheels and the center of the tread on the other rear wheel. A wider track means increased stability and room for a larger trunk. However, a wider track



Motor Trike's Gladiator trike kit features independent rear suspension, a patented air ride suspension, and progressive coil over shocks.




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HOW IT WORKS

also results in slightly more weight and a small increase in turning radius.

Reverse Options

A FEW OLD TIMERS (MYSELF INCLUDED) and many vintage trike enthusiasts recall the Harley-Davidson three-wheel Servi-Car with its three forward and one reverse gear transmission. A more modern approach to incorporating reverse into a trike involves either an electric motor, which engages a ring gear on the differential, or a mechanical reverse kit on the transmission. Harley-Davidson went with electric reverse on its Tri Glide and Freewheeler models. Some trike kit manufacturers offer electric reverse as either standard equipment or as an extra cost option. Others suggest mechanical reverse with a kit added to the right side of the transmission.

Anyone considering a mechanical reverse needs to learn the procedure for using this modification to a stock transmission. One type of mechanical reverse uses shear pins in the modification to avoid damage to the transmission if reverse is used incorrectly. Sportster and V-Rod owners thinking of converting their bike to a trike should check into the electric reverse because the mechanical reverse kits are meant for five- and six-speed transmissions on Twin Cam models and five-speed transmissions on some later Evo-powered bikes.

Other Concerns

THE WEBSITE OF AT LEAST ONE TRIKE KIT manufacturer cautions customers that installing a trike kit on a motorcycle that's still covered by the original warranty will void that warranty. This was confirmed when a motorcycle salesman at a large Midwest dealership told me "Installing a trike kit on a new motorcycle means you can kiss the warranty goodbye." A warranty on a trike kit only covers the components of the kit when properly installed on the model motorcycle they were intended for.

Another issue that prospective trike kit customers should be aware of is insurance. Your motorcycle insurance company deserves to know that you've converted your bike to a trike. Be prepared for a deluge of questions. How much did the kit cost? Who installed the kit? Does the kit have a permanently attached serial number? What manufac-

TRIKE KIT CHART

Kit Source	Suspension System	Triple Trees	Brake System	Exhaust Mods	Motorcycle Models	Reverse System
DFT DFTtrikes.com 800/895-3711	ISS	Raked Trees	Single	Some	Touring Softail Dyna Sportster	Mechanical
Frankenstein Trikes FrankensteinTrikes.com 913/352-6788	Fixed	Raked Trees	Single or Dual	Some	Sportster Dyna Touring Softail V-Rod	Mechanical
Hannigan Motorsports HanniganTrikes.com 270/753-4256	ISS	Raked Trees	Dual	Some	Touring Softail V-Rod	Optional Electric
Motorcycle Tour Conversion MTCvoyager.com 815/534-1489	ISS	Stock	Single	None	Touring Softail Dyna Sportster V-Rod	Optional Electric
American Trike AmericanTrike.com 847/630-7707	ISS	Stock	Single	Some	Touring Softail Dyna Sportster V-Rod	Optional Electric
Mystery Designs MysteryDesigns.com 214/467-0991	Fixed Or ISS	Raked Trees	Single Or Dual	Some	Touring Softail Dyna Sportster V-Rod	Optional Electric
Lehman Trikes LehmanTrikes.com 888/394-3357	Fixed Or ISS	Raked Trees	Dual	Some	Touring Dyna Softail Sportster	Mechanical
Champion Trikes ChampionSidecars.com 800/875-0949	Fixed Or ISS	Raked Trees	Dual	Some	Touring	Mechanical
Motor Trike MotorTrike.com 800/908-7453	Fixed Or ISS	Stock Or Raked Trees	Dual	Some	Touring Dyna Softail Sportster V-Rod	Optional Electric & Mechanical

turer did the kit come from? Be honest when answering these questions. Be aware that there may be a slight increase in your insurance premium as a result of converting your bike to a trike.

Finally, if you live in a state that has either random or annual vehicle inspections you may be asked to explain how your bike turned into a trike. Factory-built Tri Glides and Freewheelers get a distinctive VIN. A bike that's been converted to a trike still has a VIN that indicates it left the factory with two

wheels rather than three.

Conclusion

IN RECENT YEARS, I'VE MET SEVERAL riders who converted their bikes to trikes. These riders included a petite young lady who enjoys the stability and trunk space of a trike and an accident victim who lost part of his right leg after a van sideswiped him. My point is, if you want to keep riding, and need the stability and comfort of a trike, there are plenty of choices available. **AIM**



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Kickstarting The Beast

Part II: Starting techniques and kickstarter gears

The starter crank gear cam plate is riveted to the starter crank gear, which is secured to the left end of the starter crankshaft. The starter crankshaft goes through the sprocket cover, skirts the transmission rear chain sprocket, then goes across behind the transmission case and through the right face of the left engine case to just behind the clutch sprocket assembly.

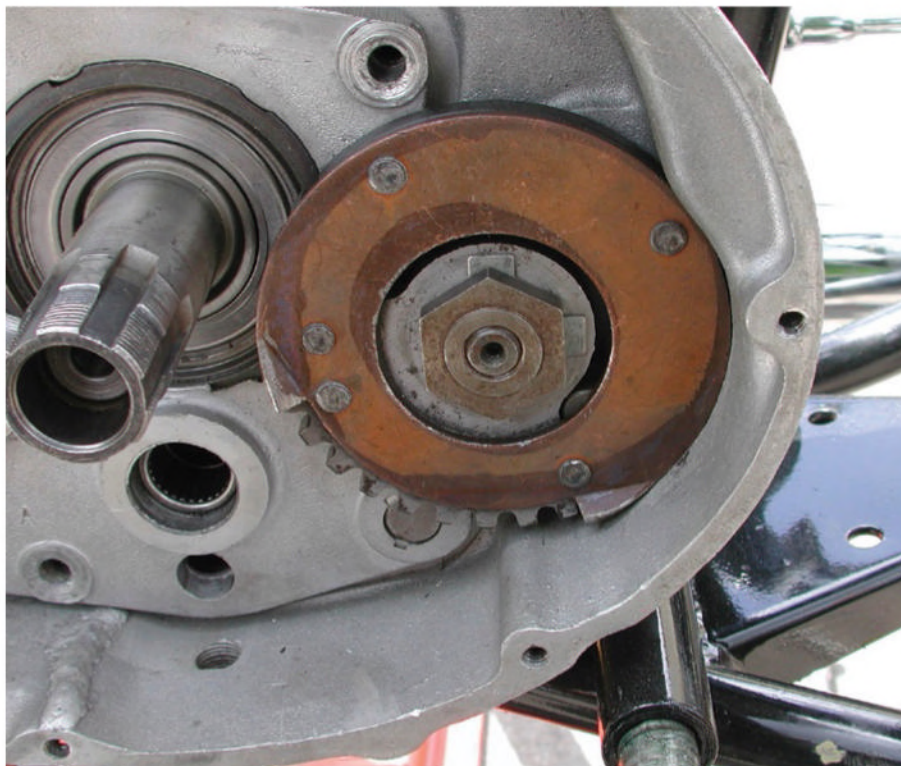
IN THE LAST ISSUE, WE LEFT OFF TALKING ABOUT HOW if the gear teeth of the starter ratchet plate and starter ratchet gear on your Ironhead Sportster round from inattention, or you forget to replace the starter ratchet gear bushing when it wears beyond tolerance, you are about to be taught a painful lesson!

Kickstart Tutorial

LAUNCHING THE KICK DEPENDS ON WEIGHT, TECHNIQUE, AND confidence level. The height of the bike is important to me. The bike will be on its sidestand with the front end turned away towards the sidestand. A tall, confident rider can stand over and straddle some bikes, leaving the bike on the sidestand or holding it up straight while kickstarting. I stand on the ground with my left leg to the back while I kick over the bike with my right. If this is awkward, as with an Ironhead XL that sits high, I'll hop up onto the kicker with my right foot and use all my weight, letting my left leg act as a balancer as I plunge through the half circle. Others feel comfortable kneeling on the seat with their right knee and kicking down with their left leg. Those with an injured right leg (afflicted

with Sportster knee) kick down with their left using the right leg to balance in the air. The old kickstart Ironhead Sportsters are notorious for slipping kickstarter mechanisms that may snap the knee overly straight at the bottom of the kick. The important factor is to follow the kick all the way through. The rider must stay in control. The kicker doesn't stop on its internal pin until past the 90-degree mark. This is the mistake most make. They stop when the kicker is perpendicular to the ground or — worse — before. Be sure to follow through past this point about another 10 or 15 degrees towards the front of the bike. Do this and there will be no compression kick back to snap your knee back or throw you over the bars. If the gears slip, do the same. Follow all the way down and through until your leg is extended out and locked in a controlled manner and you'll be fine. If uncontrolled and your knee snaps, I offer my condolences. Of course, when this happens, it's time to do the necessary repairs to thwart the beast from injuring your knee. If the kickstart gears slip, as they will when worn, do the same: control the kick all the way down and through until your leg is extended out locked and you'll be fine. Of course, if kick gear slippage occurs, it's time to do the necessary repairs to prevent future injury to the knee.

When the bike begins to fire, it may start and purr under its own volition or a feathering of the throttle may be required. Many times, a hot bike on a hot day will need no further encouragement. A cold bike on a cool day will probably need some throttle encouragement. Experimentation is necessary. However, over time, you'll instinctively know what's needed, and that will make kickstarting an easy process. Big Twins have a kickstarter with a more positive gear tooth engagement. It might slip when





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-
- A side profile of a black Harley-Davidson Heritage Softail motorcycle. The bike features a large black fuel tank with 'Heritage Softail' and 'Harley-Davidson' branding. It has a chrome engine, dual exhaust pipes, and a large black saddlebag on the left side. The front wheel is a multi-spoke design, and the rear wheel is a solid disc. The motorcycle is shown against a plain white background.



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badly worn or kick back occasionally in a lackadaisical way. The Sportster has a small-man complex, out to prove his virility at every opportunity.

Throttle Control

BE CAREFUL NOT TO ACCIDENTALLY rotate the throttle while kicking, as it will flood the engine. Most riders rest their hand on the throttle when kicking. As the rider's body travels down with the kicker arm, there's a natural tendency to rotate the throttle. It takes practice not to move the throttle while kicking the engine over. I set the throttle to a position I choose for starting a particular bike. Some bikes require leaving the throttle closed, some need the throttle just cracked open a hair, but most need the throttle opened about 1/16"-1/8". If you smell gas, the engine is flooded. Open the choke (if you put it on), hold the throttle wide open, and kick the engine through (with the ignition off) several times to clear the engine.

Cold starting requires more gas than an engine that has been warmed up or at full operating temperature. The same holds true if the outside ambient temperature is cool or cold. A cold start requires more gas relative to air than a hot start does.

Experimentation is usually necessary to determine an engine's starting procedure. The goal is to find the right combination of starting factors to make the bike a one-kickstarter. It's no fun kicking your

A steel bushing spacer (right), which is available in different lengths, fits inside the starter ratchet gear. Note the starter ratchet gear spring attached to the back of the starter ratchet gear.



brains out for 15 minutes. The one-kick Harley makes starting easy, as well as making the rider look cool. Fool around with different priming, choke, and throttle setting combinations until you find the combination that works. Once you determine the correct formulas (cold, warm, and hot), stick with them.

Cranky Gears & Ratchety Noises

THERE ARE MULTIPLE LITTLE TEETH that unauthoritatively stick out on the starter ratchet gear's face. These mesh with the same number of small teeth on the mating kickstarter ratchet plate that's riveted to the back of the clutch hub. When not kicking, the starter crank gear cam plate holds the starter

ratchet gear away from the ratchet plate. The starter ratchet gear bushing (#33442-57, #33442-73) rides on a fit-to-length steel bushing spacer. I mention this because it's a very necessary ongoing repair. If the cam plate on the gear becomes dinged with indents or bent to any degree, it needs to be replaced or it will become the architect of kickstarter problems by allowing the ratchet gears to engage or partially engage when they're not supposed to. The precursor to this is a worn starter ratchet gear bushing. It allows the gear to shift a little sideways instead of directly forward. There is not much room for wear when there is minimal gear mesh separation when disengaged.

SPORTSTER KICKSTARTER PARTS

Year And Model	Kickstarter Arm	Starter Clutch	Starter Clutch Gear	Spring Starter Clutch	Starter Crank Gear	Starter Crank Shaft
1957-59 XL	33061-52 33061-52A	33379-57	33432-57	33390-52	33356-57	33094-57
1958-70 XLH, XLCH	33061-52 33061-52A Retrofit	33379-57	33432-57	33390-52 33391-52	33356-57	33094-57
1971-72 XLH, XLCH	33061-52A	33379-71 33379-71A	33432-57	33391-52	33356-57	33094-57
1973-76 XLH, XLCH	33061-52A	33379-71A	33432-73	33391-52	33356-57	33094-57
1977-79 XLCH, XLH, XLS	33060-77	33379-71A	33432-73	33391-52	33348-78	33094-77A

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TECHLINE

The clutch shell bearings also play a lesser but still vital role especially on the 1957-70 models. Depending on the model, there are one or two thin needle bearings (#37722-52) that when worn will allow the clutch hub to vary slightly from its intended place. Remember, the starter ratchet plate is riveted to the back of the clutch shell. It's very important to maintain these parts in like-new condition to make an imperfect kick system work at its best, which is often not good enough. The 1971 and later Ironhead wet clutch shell bearing is a big sealed ball bearing (#37722-71) that's resistant to sideplay.

When the engine is running and the kicker arm is in its straight up and stopped position, if you hear a clicking, ratchety noise it's time to repair the kickstarter sooner rather than later. The noise is caused by the teeth on the starter ratchet plate making partial contact with the teeth on the starter ratchet gear. Once the gear teeth are worn, the starter ratchet plate and the starter ratchet gear must be replaced. The most likely cause

When the kickstarter arm is either fully up or fully down, the starter crank gear cam plate on the starter crank gear holds the starter ratchet gear away from the starter ratchet plate that's attached to the back of the clutch shell.



is a worn starter ratchet gear bushing. Another potential cause, on 1957-70 models, is the clutch shell bearings. If these are badly worn, the clutch shell, also called the clutch sprocket assembly, will shift a little sideways and allow partial engagement of the kickstarter gears. A loose starter (crank) shaft nut on the primary side will allow the starter crank gear to shift on the starter crankshaft. Excessive starter crankshaft endplay will also allow the starter crank gear to shift. A loose starter crank gear cam plate,

though unlikely, could also cause the problem. A damaged starter ratchet gear spring, which is also unlikely in my experience, can also cause kickstarter problems. The starter ratchet gear binding on its clutch sprocket spacer – again unlikely – could also be a cause.

Conclusion

In the next issue, we'll talk about the lowly floorboard.

Donny Petersen
DonnyPetersen.com

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SUPER COUPON

4 PIECE 1" x 15 FT. RATCHETING TIE DOWNS

HaulMaster

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62322/90984 shown

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PITTSBURGH

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3500 LB. ELECTRIC WINCH WITH REMOTE CONTROL AND AUTOMATIC BRAKE

NEW

LOT 68145/61604/61383/61257 shown

\$129.99

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30", 5 DRAWER TOOL CART

LOT 69397
61427/95272 shown

• 704 lb. Capacity

SAVE \$185

\$164.99

REG. PRICE \$349.99

68963844

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SUPER COUPON

MOTORCYCLE WHEEL CHOCK

PITTSBURGH

LOT 60392/69026 shown

SAVE 40%

\$299.99

REG. PRICE \$49.99

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SUPER COUPON

NEW HARDY MECHANIC'S GLOVES

MEDIUM LOT 62434 62426

LARGE LOT 62433 62428

X-LARGE LOT 62432 62429 shown

YOUR CHOICE!

SAVE 60%

\$3.99

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SUPER COUPON

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WARRIOR

• Drill 28 Hole Sizes

LOT 91616 shown
69087/60379

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Customer Rating ★★★★★

1500 LB. CAPACITY MOTORCYCLE LIFT

PITTSBURGH MOTORCYCLES

LOT 69995 shown
2792/60536/61632

• Lift range: 5-1/2" to 17"

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69005503

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LOT 69052 shown
69111/62522/62573

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69007420

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HaulMaster

LOT 90018 shown
69595/60334

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68982390

WOW SUPER COUPON

10 PIECE BEARING RACE AND SEAL DRIVER SET

US★GENERAL

LOT 62624/95853 shown

\$2999 ~~REG. PRICE \$49.99~~

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68991341

WOW SUPER COUPON

SAVE \$145

20 TON SHOP PRESS

LOT 32879/60603 shown

CENTRAL MACHINERY

• Pair of Arbor Plates included

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69004491

WOW SUPER COUPON

3 GALLON, 100 PSI OILLESS PANCAKE AIR COMPRESSOR

LOT 60637/61615
95275 shown

CENTRAL PNEUMATIC

\$3999 ~~REG. PRICE \$89.99~~

SAVE 55%

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69007161

WOW SUPER COUPON

1500 WATT DUAL TEMPERATURE HEAT GUN (572°/1112°)

drillmaster

LOT 62340
62546/96289 shown

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68978765

WOW SUPER COUPON

MOVER'S DOLLY

HaulMaster

LOT 60497/93888 shown
61899/62399

\$876 ~~REG. PRICE \$14.99~~

SAVE 41%

• 1000 lb. Capacity

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68986653

WOW SUPER COUPON

12" SLIDING COMPOUND DOUBLE-BEVEL MITER SAW WITH LASER GUIDE

NEW

LOT 61776/61969/61970/69684 shown

CHICAGO ELECTRIC POWER TOOLS

\$13177 ~~REG. PRICE \$299.99~~

SAVE OVER \$168

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68990375

WOW SUPER COUPON

9 PIECE FULLY POLISHED COMBINATION WRENCH SETS

PITTSBURGH

LOT 69043/42304 shown

SAE

METRIC

LOT 42305/69044

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SAVE 62%

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68992923

WOW SUPER COUPON

MULTI-USE TRANSFER PUMP

PITTSBURGH

LOT 3878/61364
66418 shown

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LOT 60363/69730/68120

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69002990

WOW SUPER COUPON

CENTECH AUTOMATIC BATTERY FLOAT CHARGER

LOT 42292 shown
69594/69955

\$599 ~~REG. PRICE \$19.99~~

SAVE 70%

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68980672

WOW SUPER COUPON

44" 13 DRAWER INDUSTRIAL QUALITY ROLLER CABINET

US★GENERAL

• Weighs 245 lbs.

LOT 62744/68784 shown
69387/62270/62591

\$36999 ~~REG. PRICE \$699.99~~

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68986073

WOW SUPER COUPON

10 FT. x 17 FT. PORTABLE GARAGE

HFT

LOT 60727/62286/69039 shown

\$17999 ~~REG. PRICE \$299.99~~

SAVE \$120

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68989384

WOW SUPER COUPON

350 LB. CAPACITY MOTOCROSS DIRT BIKE STAND

HaulMaster

LOT 66552

\$1999 ~~REG. PRICE \$39.99~~

SAVE 50%

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Making a new bike look old

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P

OWDERCOATING OFFERS MANY OPTIONS THAT CAN produce mind-blowing results for custom bike builders. The high tech and extremely durable baked-on finish comes in candies, metal flakes, and textures, and it's available in thousands of colors.

But Dave Steg, owner of Complete Powder Coatings (or CPC as it's better known to customers), used little of his company's precious resources on his latest build. "We specialize in the custom side of powdercoating, and that means an almost endless number of colors, candies, and textures," Dave said from his Crest Hill, Illinois, facility. "But I just didn't use very much powder on this one because I like chrome, and I wanted to keep the bike as simple as possible."

Dave had been without a motorcycle for more than two years when he bought this 2007 Harley-Davidson Road King used a few years ago. By then his business was flourishing and life was busy, but the time had come to get back on board the custom bike train. As purchased, the ride was bone stock, showing a scant 5,000 miles on the odometer, prompting Dave to proclaim that he'd never do anything with the King but ride it. That proved to be his undoing as we shall see.

And ride it he did — for a while, anyway. But he just couldn't leave well enough alone, and soon enough, Dave began customizing the Road King, starting with a set of 4" extended bags from the Fairing Factory that also houses a set of speaker lids. Dave likes his tunes, and he likes them loud when he rides.

Shortly after the bags were hung on the FLHR's sides, Dave started doing some powdercoating work for DA Performance in Alsip, Illinois. DA Performance offers a wide range of services for V-twin riders, including complete builds, engine performance enhancements, frame modifications, and stereo installations. And it was during a visit to DA's shop that Dave heard another bike owner's stereo pounding out the tunes, and it sounded much better than his bike's audio system — and Dave couldn't have that.

Almost on the spot, Dave made a decision to go bigger and better in the stereo department. So he equipped his Road King with six Hertz SPL speakers in the bags, two 8", two 6-1/2", and a pair of tweeters, all driven by a 500-watt Hertz amp. Dave's phone, which stores all of his tunes, plugs in right in front of the seat.

But he wasn't going to stop with just the music. He enlisted DA Performance to further improve his Road King with a stretched Bad Dad rear fender to match the bags.



While the back end was apart, an Arnott air ride suspension system found its way between the rear frame and swingarm. Dave likes the lowered stance that the air ride provides, and it's one that just isn't possible with factory shock absorbers.

By that time, Dave was formulating a plan. "My plan," he says, "was to build a newer bike with an older, nostalgic look."

To emphasize the nostalgic look, Dave opted to run a set of Hogpro 100-spoke wheels. Further nostalgia is found with the Avon whitewall tires, making the bike look as

though it just rolled out of the 1950s. Dave binned the stock brakes, too, upgrading to rotors and calipers from a 2008 Harley-Davidson. The new combination includes twin four-piston calipers up front, followed by a single six-piston binder on the rear. All hydraulic lines are stainless steel, and they're from Magnum Shielding, makers of custom after-market braided control cables, brake hoses, fuel lines, and ignition wires since 1982.

As mentioned, Dave is a fan of chrome. He completely

**"My plan was to build
a newer bike
with an older,
nostalgic look."**





disassembled the stock H-D fork, sending all the pertinent pieces out for plating at his friend Big Ed's shop. After the fork components went back together, the original Road King's front fender slid into place with no modifications. The headlight nacelle was treated to a Harley-Davidson 7" Daymaker LED headlight, which is flanked by two smaller Daymaker running lights. Crowning the fork is a 36"-wide Wild 1 Chubbys beach handlebar, complete with Harley-Davidson chrome controls and stock mirrors.

In fact, various other components on Dave's bagger remains stock, too. They include the fuel tank and dash, seat, side covers, primary cover, and foot controls. The

frame remains unaltered, and even the paint, which was applied by J&L Auto Craft in Crest Hill, Illinois, is the stock Harley-Davidson Black Cherry.

But Dave still wasn't finished. After completing the "nostalgic" modifications, he decided to slightly improve the Twin Cam 96's performance.

"I was looking for function and reliability," Dave says. "I've had a few bikes in the past where I went full custom with a big motor, and they weren't really reliable. This was intentionally kept as simple as possible."

Dave called on local engine builder James Rouse, who works privately in his home garage, for the engine fix. James pulled the jugs and heads to bore the cylinders to 3.875", taking the 96" V-twin to 103". Pistons were upgraded to TRW slugs with a 11:1 compression ratio. The cylinder heads went to Millennium Technologies in Wisconsin for porting and polishing, and while the cylinders and heads were off the Road King, Dave powdercoated the pieces with a black wrinkle finish.

Finally before reassembly, the sparkly finned heads were fitted with Wood Performance valves. The rest of the valvetrain was upgraded with a Wood's TW-9 cam and Wood's lifters, while Screamin' Eagle pushrods and rockers serve as the final link with the lower end. A TraceCave Customs



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cam cover hides everything in the timing chest. Fuel injection is stock, but the engine breathes through a Roland Sands Design Venturi air cleaner, with exhaust handled by Rinehart 2" True Duals headers and mufflers.

Since the bike's completion, Dave has added some 18,000 miles to the odometer, reporting that he's had absolutely no reliability issues with any of the modifications. He says that he generally puts a few hundred miles on the bike during weekend rides, and he also uses the bagger as a daily commuter. There's one exception, though. With all of the bling that Dave added to the Road King, he doesn't like to ride it in the rain. Sounds as though Dave should have opened a plating shop instead of a powdercoating facility. But he loves working with the baked-on plastic finish, and over the last 10 years, he's helped out hundreds of car and motorcycle builders with their projects. You just won't find much powder on his tastefully upgraded King! **AIM**

TECH SHEET •

Owner: Dave Steg
Builder: DA Performance, Alsip, IL
Year/model: 2007 Harley-Davidson Road King
Cost to build: \$35,000
Time to build: One year
Chromer: Big Ed's, Mokena, IL
Polisher: Big Ed's
Powdercoater: CPC Powder Coatings, Crest Hill, IL
Painter: J&L Auto Craft, Crest Hill, IL
Color: Black Cherry

POWERPLANT

Engine: 2007 Harley-Davidson Twin Cam 96
Builder: James Rouse, Crest Hill, IL
Displacement: 103"
Horsepower: 119
Cases: Stock
Flywheels: Stock
Cylinders: Stock, bored 3.875" oversize
Pistons: TRW 11:1
Heads: Stock, ported and polished by Millennium Technologies
Cams: Wood Performance TW-9
Valves: Wood Performance
Rockers: Screamin' Eagle
Lifters: Wood Performance
Pushrods: Screamin' Eagle
Air cleaner: Roland Sands Design Venturi
Exhaust: Rinehart 2" True Duals
Ignition: Screamin' Eagle
Wires: Twisted 12mm

Charging system: Stock
Cam cover: TraceCave Customs
Transmission: 2007 Harley-Davidson
Case: Stock
Gears: Stock
Clutch: Stock
Primary drive: Stock chain
Final drive: Stock belt

CHASSIS

Frame: 2007 Harley-Davidson FL
Front forks: Stock
Front wheel: Hogpro Wheels 100 spoke, 3.50-21"
Rear wheel: Hogpro Wheels 100 spoke, 5.50-18"
Front brake: Harley-Davidson 2008 Road King four-piston caliper
Rear brake: Harley-Davidson 2008 Road King six-piston caliper
Front tire: Avon MH90V-21"
Rear tire: Avon MT90V-18"
Front fender: Stock
Rear fender: Bad Dad

ACCESSORIES

Headlight: Harley-Davidson Daymaker
Taillight: Bad Dad
Handlebars: Wild 1 Chubbys beach bars
Seat: Stock
Pegs: Harley-Davidson
License bracket: Bad Dad
Hand controls: Harley-Davidson chrome
Levers: Harley-Davidson chrome

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Photo taken at the Sugar-n-Spice Diner, Spartanburg, SC



2015 H-D Softail Slim

Harley's anti-chrome bobber

I'VE GOT A SOFT SPOT FOR BOBBERS. THOSE STUBBY customs have an alluring nature that no other motorcycle seems to match. Choppers are certainly cool, but they can be cumbersome, especially in tight, confining spaces where you're apt to get into a low-speed wobble and experience an embarrassing fall. No doubt, Pro-Street customs share a go-fast look, but they all share a generic stance, as if they were engineered in the same gene pool that dictates prescribed portions of billet aluminum, chrome, and colorful paint. Baggers? Well, they certainly have their place under the sun, but many people feel that you must pass through a certain portal of life (read gray hair, crow's feet around the eyes, and sore, achy joints) before you really want to step into that arena.

But bobbers are different. They're magnets to riders and enthusiasts of all ages, experience levels, and riding backgrounds. Drop your bobber's sidestand onto the asphalt at your local roadhouse parking lot, and chances are that more than a few inquisitive eyes will cast your bike's way. I know







NEW BIKE REVIEW

because a few years ago I built a bobber, and it attracted more attention than I ever thought it would. Even though it was based on new components and had an Evo-based engine, that retro-style bike looked as if it had rolled right out of a James Dean movie, and we know how long ago it was when he commanded the silver screen.

So bobbers are cool, and if you're looking for a turnkey bobber, you need go no farther than your local Harley-Davidson dealer where you can plop down \$15,899 for a FLS Slim decked out in Vivid Black. Or you can upgrade to a livelier color, such as the Sand Cammo Denim finish that our test bike wears. And when you think about it, this paint scheme could have been used by courier riders serving under General George Patton when he and the Seventh US Army chased Field Marshal Erwin Rommel, aka the Desert Fox, across North Africa during World War II. George's gang won that bout, and so, too, the Slim's desert-tone satin finish and Twin Cam-powered Softail platform form a winning combination.

Indeed, moto lore tells us that bobber-style motorcycles resonated with many American GIs when they returned home after The Big One. Many of those young GIs, flush with money and eager to spend it, bought war-surplus Harleys (mostly WLA flatheads) that they stripped down and bobbed the fenders (thus the name "bobber") to help

reduce weight. Some bikes continued wearing their military-issue paint. Others were blessed with a repaint, often sporting rudimentary color schemes that probably looked much like the Sand Cammo Denim on our Softail Slim.

But as visually close as the Slim remains to its distant and dutifully bobbed WLA cousins, the FLS is also miles ahead in terms of mechanical features and build quality. Look no further than the Slim's Twin Cam 103" engine and you'll realize that you're not in the mid-20th century. The two-cam engine runs buttery smooth, thanks to a battalion of counterbalancing bits and pieces churning away inside the alloy cases, and its electronic sequential-port fuel injection meters proper doses of fuel and air into the two big cylinders for seamless performance. No need to fiddle with a manually operated choke lever or anything, just thumb the start button, click the six-speed Cruise Drive transmission into first gear, twist the throttle, and go. And with nearly 100 ft-lbs. of torque (Harley claims precisely 97.4 ft-lbs. at 3000 rpm) on tap to easily haul the Slim's 672 pounds of dry weight (claimed), this Softail snaps to attention and obeys your command quickly. The Desert Fox never would have stood a chance of getting away from GI You on this bike.

While ABS remains a welcomed option (which our bike has, although all other Softails come standard with ABS), the Slim shares the same improved brake system found on the rest of the Softail lineup. The upgrade improves braking response to lower front brake lever effort. Harley claims a 40 percent reduction in lever forces at peak braking. Mechanically, the

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improvements include a re-engineered master cylinder and front caliper with larger pistons inside and a slightly larger brake rotor for the pads to bite onto. You may or may not notice the reduced lever effort, especially during normal, everyday riding, but, in theory, it should be easier to fully squeeze the front brake lever during panic stops. Our panic brake test from 30 mph netted a stopping distance of 27'. More to the point, though, we attained that distance with little fanfare, thanks to ABS and the brake upgrades.

But let's get ol' Slim back on the road. After you settle into the stylish solo saddle, grab that cool-looking Hollywood handlebar's grips, and plop your size 11 boots onto the retro-cool half-moon footboards, you're rewarded with rather friendly ergonomics. Seat height is a claimed 23.8" (laden with a 180-pound rider), allowing you to sit "in" the saddle as much as you do on it, and the arm reach doesn't require you to lean forward, allowing an unobstructed view of the road ahead. It's a pleasant seating position, and for the first 30 or so minutes, you feel right with the world. Then, sometime during the next few miles, your buns begin to burn, the victims of the seat cushion's sparse padding and minimal support. It's a stylish seat, no doubt, with its pleated tuck-and-roll insert so period perfect for bobbers, but the sad reality is that the seat is too small and too firm, making it feel like a wooden pedestal, not a custom bike seat. Think in terms of what it felt like in church the time

the pastor's message seemed to be directed right at you-know-who, and all you could do was sit idly, squirming in that hard, wooden pew for the duration of the service. About 40 minutes after riding the Slim, you'll begin to pray for an aftermarket seat, trust me on that.

WHILE YOU'RE AT IT, PUT IN A GOOD WORD FOR more cornering clearance. Those half-moon footboards clearly add to the Slim's nostalgic charm, but they also take away some lean angle when bending the bike into a turn. The front end geometry of 32 degrees rake and 5.8" trail results in a friendly, neutral-steering bike that serves up somewhat lazy initial turn-ins for corners. A gentle push on the handgrips to initiate turn-in prompts the Slim to search for the turn's apex, and the 16" Dunlop tires do a good job of holding the line to the exit. And like most Softails, the Slim's low center of gravity makes it easy to flick from side to side for surprisingly quick directional transition, so it's easier than you think to lean this bike hard into most corners, at which point you're bound to tap the footboard's metal onto the pavement.

But you don't necessarily have to push the Slim hard into every corner to enjoy the ride, and you don't have to keep its "wooden" saddle, either. Ride this Softail gently through a twisty back road and replace the seat with something softer and with more support and you'll be one happy biker. And when you park it at the roadhouse during bike night, don't be surprised if more than a few curious people inch their way closer to have a better look at your store-bought bobber. **AIM**



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text by
wayne scraba

photos by
dino petrocelli

The story of a Super Glide that got punked

WHAT'S OLD Is New



IF "COPPER MIKE" COLE WERE TO FILL OUT A ONE-sentence resume, it might read: part artist, part metal-worker, and part motorcycle builder. Copper Mike strings those three qualities together for most of his bike builds, too. His claim to fame is a love of coupling copper work with an equal fondness for steam punk, which the Oxford Dictionary defines as "a genre of science fiction that typically features steam-powered machinery rather than advanced technology." Think in terms of Mad Max meets mid-19th century technology. Regardless of definition and time period, one thing is clear: Copper Mike's work is unique. And plenty of folks dig it.

One such customer is the owner of this feature bike, a 2007 Super Glide. As it turns out, we don't know the owner's name, and Copper Mike isn't revealing it, either. The owner wants to remain completely anonymous (his bike certainly isn't, but we digress). The owner was smitten with Copper Mike's designs because he builds the kind of machines that beg to be ridden. Get an accidental chip or scratch on its paint job? No problem. That minor blemish is now part of the story and part of the bike's patina. But in this case, Mr. Anonymous wanted old-world looks to blend with modern reliability. So when Mr. A hauled his Super Glide to Copper Mike's shop for a complete copper makeover, he gave him artistic license to do with the bike as he pleased. There was only one catch: the Twin Cam engine had to remain pretty much stock. Mr. A wanted reliability, and a stock engine helps assure that.

No worries, according to Copper Mike. As soon as the bike rolled into the shop, the Gravesend Cycles crew attacked it like a school of hungry piranha, stripping it to the bone. The first challenge was to mate a vintage 1940s-era springer fork to the neck. As Copper Mike tells it, though, the switch isn't as easy as it looks. Even the small details differ. Case in point: the steering stops. It had to be relocated so it would be in line with the fork legs at full lock. Once the springer was sorted out, Copper Mike adapted a set of Fabro Industries short ape bars by way of Italian-made Kustom Tech risers. Kustom Tech also provided the slick hand controls and levers. The mirror is a Copper Mike bit mounted under the bars.

Rolling stock consists of laced DNA Fat Spoke front and rear. The Super Glide's tires were swapped out, using huge-by-large 5.00-16" Avon Safety Mileage MKII, front and rear. The truth is they're fat, but maybe not that fat. In all honesty, the back skin is actually smaller than the bike's standard-issue 160/70-17" tire. Looks can be deceiving.

Interestingly enough, the shape of the new rear fender lends itself to creating the fat-tire look. It's an in-house job that Copper Mike designed to wrap closely around the tire. As you can see in the photos, there's also a vintage-looking copper strip running the length of the fender. Look closely and you'll see the Gravesend Cycles fender struts have a vintage blacksmith look to them, too. It was all part of the plan.



Copper Mike also carried the vintage blacksmith look forward, plating the gas tank's original dash panel to match the rear fender trim. He built a custom sprung saddle to fit and added a Performance Machine two-piston front brake kit to the vintage springer fork. The rear brake remains stock as are the foot controls, although they're plated to match the sheet metal's new trim.

Upstairs, Copper Mike covered the stock headlight with a custom grille assembly. The horn is a vintage Harley piece, and Copper Mike fabricated a crashbar from an old Knucklehead

piece. Note the honking big vintage turn signals mounted down low on the crashbar. Look closely and you'll see the lights have arrows in them, and each signal is equipped with a hood. Copper Mike figures they're old tractor pieces.

Down low, Copper Mike built a bracket to accept a reproduction Harley toolbox on the right flank. It fits the theme perfectly.

A major challenge to the build was the electrical wiring. The Gravesend Cycles crew carefully cut away anything that wasn't needed and tucked away and hid the remaining wires when possible. A tiny set of micro



switches pretty much control everything (signals, horn, etc.).

With the wiring in order, Copper Mike turned his attention to that stock Twin Cam engine. As we pointed out, the Twin Cam is bone-stock. But Copper Mike reasoned that the modern engine at least had to visually blend with the bike, so he took a vintage garden sprayer, drilled a series of holes in it, and then fashioned an adapter to fit over the EFI throttle body. Instant vintage! The pipes weren't quite so easy. In fact, Copper Mike figures they took the longest time to build on the bike because he had to make two sets. The first set didn't allow room for a passenger seat. But the bike's owner wanted to have a part-time passenger pad on the machine, so that exhaust system was relegated to the boneyard. Back to square one. As you can see, the front pipe dumps just aft of the mid-controls. The second pipe, though, snakes alongside the motorcycle's flank before going behind the shock to exit just above the swingarm. It's a convoluted, complicated path, but it works from a steam punk perspective, particularly when wrapped and trimmed with a set of brass tips.

Speaking of metal, not a single part on this machine has been painted. The frame retains

its stock black coating, but every other seemingly painted piece was powdercoated by ReNu Powder Coating in West Babylon, New York. But the rest of the machine was actually plated by local outfit Gravesend Plating. That plating includes pieces of the gas tank, fender, pegs, horn, and so on. It's a unique approach, but it goes to show the different finishes and textures available at a good plating shop.

When the bike was finished, Copper

Mike loaded it on the back of his truck and headed straight over to

the big Progressive International Motorcycle Show in New York. The

result? The Super Glide scored second in

class. And for a bike that was built solely to

ride, that's something. Speaking of riding, the

owner is pretty much everywhere and anywhere,

and he harbors no concerns about gathering

chips, scrapes, and street wounds on the finish,

either. They only add to the character (which

literally drips from this machine). The reality

is this vintage-looking Super Glide always

draws a crowd, and the first thing most

folks want to know is the model year. They

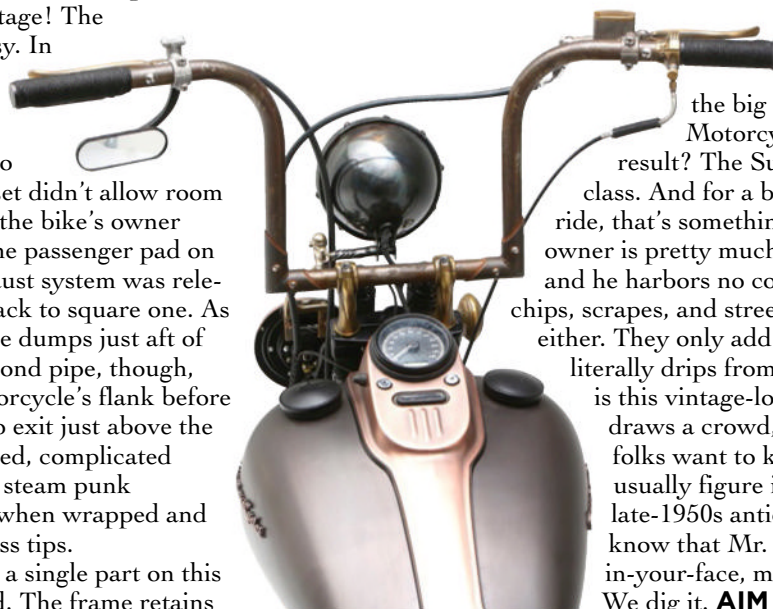
usually figure it's a mix of mid-1940s and

late-1950s antique FL pieces. Little do they

know that Mr. Anonymous' bike is truly an

in-your-face, modern steam punk hot rod.

We dig it. **AIM**



TECH SHEET •

Owner: Anonymous
Builder: Copper Mike Cole, Gravesend Cycles, Lindenhurst, NY
Year/model: 2007 Harley-Davidson Super Glide
Time to build: Three months
Chromer: Gravesend Plating, Lindenhurst, NY
Powdercoater: ReNu Powder Coating, West Babylon, NY
Color: Antique Copper

POWERPLANT

Engine: 2007 Harley-Davidson Super Glide Twin Cam
Builder: Stock
Displacement: 96"
Cases: Stock
Flywheels: Stock 4.38"
Cylinders: Stock 3.747"
Pistons: Stock 9.2:1
Heads: Stock
Cams: Stock
Carb: Stock EFI
Air cleaner: Antique bug sprayer
Exhaust: Copper Mike Cole, Gravesend Cycles
Ignition: Stock electronic
Charging system: Stock
Transmission: Stock six-speed Cruise Drive
Case: Stock
Gears: Stock
Mods: None
Clutch: Stock
Primary drive: Stock chain
Final drive: Stock pulley

CHASSIS

Frame: 2007 Harley-Davidson Super Glide
Rake: Stock
Stretch: Stock
Front forks: 1940s Harley-Davidson springer
Mods: Reworked to fit frame
Swingarm: Stock
Front wheel: DNA Fat Spoke 16"
Rear wheel: DNA Fat Spoke 16"
Front brake: Performance Machine two-piston caliper
Rear brake: Stock
Front tire: Avon Safety Mileage MKII 5.00-16"
Rear tire: Avon Safety Mileage MKII 5.00-16"
Rear fender: Copper Mike Cole, Gravesend Cycles
Fender struts: Copper Mike Cole, Gravesend Cycles

ACCESSORIES

Headlight: Stock, modified with handmade grille
Taillight: Aftermarket
Fuel tank: Stock
Oil tank: Stock
Handlebars: Fabro Industries
Risers: Kustom Tech
Seat: Copper Mike Cole
Pegs: Stock, plated
Dash: Stock
License bracket: Copper Mike Cole
Mirrors: Copper Mike Cole under-bar mount
Hand controls: Kustom Tech
Foot controls: Stock, plated
Levers: Kustom Tech

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Beyond The Black Hills

Day trippin' at this year's 75th Sturgis Motorcycle Rally

LIKE SPOKES EMANATING FROM THE HUB OF A brightly polished custom wheel, thousands upon thousands of riders who descend on Sturgis, South Dakota, for this year's rally will fan out from the city in all directions, filling the Black Hills with chrome and thunder. This year marks the 75th anniversary of what has become the quintessential biker event, which officially runs August 3-9. Record crowds are expected — some estimates range from 750,000 to 1 million riders — and you can bet that all of them will be hungry for two-wheeled adventure.

If you're a steadfast Sturgis regular, you undoubtedly have your favorite rides through the surrounding countryside, and, frankly, it's hard to go wrong riding anywhere throughout the Black Hills. But if you're a Sturgis newbie, here are a few suggestions of places to visit beyond the Black Hills that are sure to get your motor runnin'.



Badlands And Pine Ridge Reservation

THE OGLALA LAKOTA SUBTRIBE CALLS THE BADLANDS *mako sica* (land bad). Today, the 244,000-acre Badlands National Park offers riders a rugged landscape of multicolored eroded buttes, pinnacles, and spires. The best place to view them is along Highway 240, the Badlands Loop, 32 miles of sheer scenic bliss.

To get there from Sturgis, hop on Interstate-90 eastbound and travel for 80 miles or so to Exit 110 at the town of Wall. Go ahead and stop at Wall Drug, the famous tourist trap — you know you want to — before heading south into the park itself.

After riding the Badlands Loop, take Highway 44 into the Pine Ridge Indian Reservation, site of the 1890 Wounded Knee Massacre. That massacre is a dark chapter in our nation's history when US soldiers slaughtered a large group of unarmed Lakota men, women, and children who were attempting to surrender to the US government. A stone monument and cemetery honoring the dead stand atop a dusty knoll overlooking Wounded Knee Creek. The site isn't particularly well marked, so you'll need to keep on the alert for road signs indicating its location. Also at Pine Ridge, the largest Native American art show in the country takes place at Red Cloud Indian School. The annual event is free and open to the public; this year it runs through August 9.



Little Bighorn Battlefield and Warrior Trail

CONTINUING THE NATIVE AMERICAN theme, another great ride involves a 200-mile blast down isolated US Route 212 — known as the Warrior Trail Highway — which terminates at Little Bighorn Battlefield National Monument near Crow Agency, Montana.

Popularly known as the site of Custer's Last Stand, the US 7th

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Cavalry's Lt. Col. George Custer and more than 260 of his men were killed in the course of a two-day battle waged against Lakota Sioux, Northern Cheyenne, and Arapaho warriors in June 1876. An estimated 100 Native American warriors also lost their lives in this famous battle. Gazing over the tranquil, rolling green hills today, it's hard to imagine the bloodbath that took place on the site nearly 140 years ago.

To get there from Sturgis, ride east on Highway 34, then north on Highway 79, which takes you past Bear Butte, known as *Mato Paba* to the Lakota people. Continue 15 miles until you reach 212, then head west. You'll cut through the northeast corner of Wyoming before reaching Montana, where for the next 170 miles, 212 takes you across lightly trafficked, wide-open spaces on the way to Little Bighorn Battlefield.

As an alternative route to the battlefield from Sturgis, you can follow 212 across the state or 34 to US Route 14, both of which offer back roads, an opportunity to experience South Dakota's varying terrain. "In the eastern part of the state, there's a lot of farmland," explains Wanda Goodman of the South Dakota Department of Tourism. "In the central part of the state, you'll run into a lot of rolling hills, and crossing the Missouri River, you'll have river valley-type scenery. Farther west, there are grasslands and prairie."

The Power of Devils Tower

ROUNDING A CURVE AND SEEING Devils Tower in Wyoming for the first time can be a deeply moving experience. A sacred site to the Lakota and other tribes, who call it *Mato Tipila*



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(Bear Lodge), Native Americans continue to hold religious ceremonies at the tower, therefore, the National Park Service has asked climbers to voluntarily refrain from ascending the tower in June. Many local tribes consider the time of summer solstice to be among the most sacred.

At Devils Tower, you can park at the visitor center to hike a 1-1/3-mile loop around the tower. To get there from Sturgis, take I-90/14 west for about 50 miles. Get off at Exit 185 when 14 splits from 90, past Sundance, Wyoming. Continue on 14 for about 30 miles, following the signs to Devils Tower. You might consider taking an alternate route back to Sturgis. When leaving the tower, follow Highway 24 east across the state line into South Dakota where it becomes 34, which will eventually take you back to Sturgis. The last part of the ride is on 90 east. It's a scenic and relaxing ride.

Oyate Trail

SOUTH DAKOTA HAS DESIGNATED AN EAST/WEST ROUTE across the southern part of the state as the Oyate Trail (Oyate translates to "nation"). The western part of the trail begins in the community of Edgemont and runs to Vermillion in the east, a distance of almost 400 miles. "It's very close to the southern border of the state," explains Wanda. "And it goes through two of our larger Indian reservations, Pine Ridge and Rosebud. Some of that scenery is pretty incredible."

From Sturgis, go west on US Route 14A and wind your way south on US Route 385 through Deadwood and past the Crazy Horse Memorial (also well worth a visit). Stay on 385 to Oelrichs before heading east on US Route 18 through the southern part of the state. At Wagner, take Highway 46 east until you can merge onto Highway 50 east, which runs through Vermillion and Interstate-29.

South Dakota Motorcycle Guide

THE SOUTH DAKOTA DEPARTMENT OF TOURISM RECENTLY



published a motorcycle guide that contains suggested rides by region as well as listing dealers, repair shops, and the state's motorcycle laws and regulations. You can download a PDF of the brochure at <https://travelsd.s3.amazonaws.com/MotorcycleGuide2015.pdf>.

Geographically speaking, South Dakota is a large state, but its population is quite small: the state ranks 17th in land area but 46th in population, boasting about 800,000 residents. You don't have to be a math whiz to realize that makes for lots of wide-open spaces and great riding.

See you in Sturgis! **AIM**

SOURCES

BADLANDS NATIONAL PARK

Hot Springs, SD 57747
605/433-5361
NPS.gov/badl

DEVILS TOWER NATIONAL MONUMENT

Wyoming 110
Devils Tower, WY 82714
307/467-5283
NPS.gov/deto

LITTLE BIGHORN BATTLEFIELD NATIONAL MONUMENT

756 Battlefield Tour Rd.
Crow Agency, MT 59022
406/638-2621
NPS.gov/libi

OYATE TRAIL

Rosebud, SD 57570
605/747-2206
OyateTrail.com

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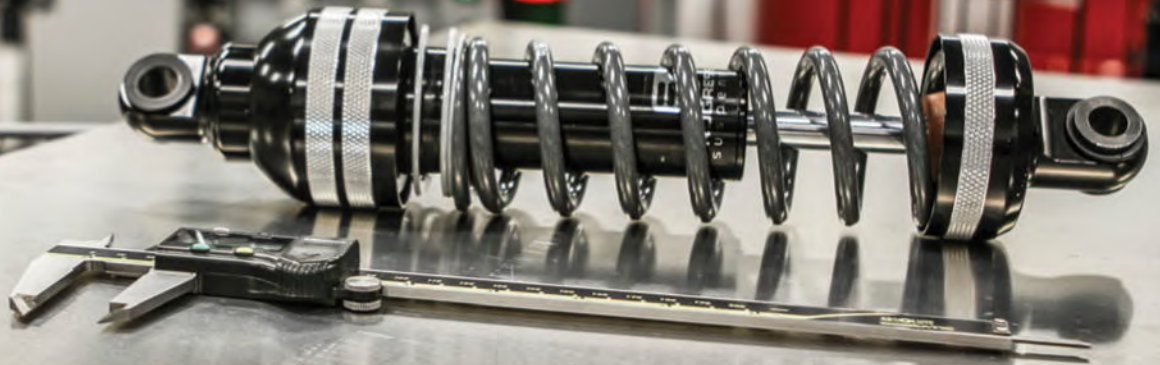
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A

ABOUT TWO YEARS AGO, T.D. WARD OF RODS & Rides in St. James, Missouri, ordered a 140" El Bruto engine from Ultima for a custom bike project his shop was working on. But when T.D. took the El Bruto Big Twin out of the crate, he found that it was too big to fit the frame. El Bruto indeed.

So T.D. put the engine aside, replacing it with a smaller engine. The El Bruto beast would have to wait for another project. "I simply said the next bike we build will have to have a taller frame," T.D. explains. And taking an alternate route from a situation such as that was no problem for T.D., whose full name is Thomas Denver, by the way. "But nobody would recognize me by that name, it's always been T.D.," he reveals.

T.D. manufactures his own drop-seat bobber frames, so he figured he could put a few tweaks into the next frame he built to accommodate the El Bruto engine. Rods & Rides builds about 50 frames per year, so the limited output allows T.D. to make as many changes to each frame's tubes as necessary. Rear frame rails can be spaced to accommodate tires from 200mm wide to 360mm wide, so usually no two frames that he forms, jigs, and TIG-welds together are ever the same.

"We don't use any laser cutters or CNC machines," T.D. says. "If it's not done on a manual mill, then it's cut out on a bandsaw and finished by hand. It's kind of old school, but it works."

For this bike, dubbed the Jolly Green Giant, T.D. built a frame 5/8" taller to house the El Bruto engine. He also gave the frame 35 degrees of rake and stretched it by 1". To retain the big and tall theme, a Ridewright 26", 60-spoke front wheel with an aluminum rim and billet hub was bolted to a Mid-USA springer fork. The fork is 4" shorter than stock, but the 12" apes from Flanders sitting in 2-1/2" Rods & Rides risers add a greater sense of height. Stopping power comes from a two-piston JayBrake caliper, and the combination juice master cylinder with lever is a Rods & Rides piece, manufactured by a California-based company to Rods & Rides' specifications. The throttle came from Custom Chrome.

"Baggers all seem to be going with bigger front wheels but, to me, on those bikes, a large wheel looks out of proportion," T.D. says. "I just wanted to try a big wheel on one of my bobbers. I kept the rake and trail the same as my other bikes, and that 26" rides like a 21". A 4-1/2" Bates single filament headlight doesn't take anything away from the dramatic stance of the 26" front wheel, either.

Out back, another 60-spoke Ridewright 5.50-18" wheel wears a Vee Rubber tire, and it's wrapped with a fender that started life as a Fat Katz blank. T.D. orders each fender as a full donut before cutting and trimming it to produce the desired shape. The rear brake on this bobber happens to be a four-piston DNA caliper.

"My goal is to always build the most American bike I can, and I try to stay as close to St. Louis [vendors] as I can," T.D. explains. To that end, the Ultima engine came from St. Louis, and the seat was handcrafted and tooled by Rich Phillips Seat Co. in nearby St. Charles. Milking the local talent for all it's worth, T.D. said that even the seat's cowhide came from Missouri cows.



The gas and oil tanks were built by T.D. The peanut gas tank is mounted Frisco style, but T.D. likes to incorporate a shallow 1/2" tunnel to route the throttle cable underneath and out of sight. T.D. uses a hydraulic press to form the



**"Baggers all seem to be going
with bigger front wheels but,
to me, on those bikes, a large wheel
looks out of proportion," T.D. says.**

sheet metal for his tanks against a die and then he welds in the bottom. For the Jolly Green Giant, he added a V-Twin Manufacturing cam-style gas cap and bung.

The cylindrical oil tank started life as a flat sheet of steel

that was rolled and welded together. Rods & Rides often makes similar oil tanks with clear-end caps so the oil is visible, but that wasn't the case with this one. Instead, T.D. capped the metal ends, and the tank sports a cap and fittings

that are sold for racecar applications.

The massive 140" El Bruto engine was left untouched. T.D. simply slipped it out of the crate and into the frame. An equally massive 48mm Mikuni carburetor with a K&N serves as intake. For the backside of the combustion process, T.D. fabricated a set of short, side-dump exhaust pipes using a 2-1/4" tube. A person who T.D. knows only as "Arkansas Jim" treated the pipes to chrome plating.

"He doesn't really want people sniffing him out," T.D. says about Arkansas Jim. "But he does an incredible job. He polishes the parts, dips them in copper, then nickel, and then chrome and polishes them again. On my exhaust pipes, he lines them with roofing tar so the plating doesn't turn blue with heat."

Power from the El Bruto engine is transferred to an Ultima six-speed transmission via a BDL belt drive. T.D. dispensed with the rear final belt drive found on the Ultima gearbox in favor of a chain that links a 21-tooth front sprocket with a 48-tooth rear sprocket. He said it's geared to get as much

torque to the ground as possible without disrupting the ride.

When it was time to splash colors on the metal, T.D. opted for black powdercoating on the frame, fork, and handlebars; the wheels came with black finishes from Ridewright. Because he'd only built one other green bike, T.D. selected House of Kolor's Kandy Green that painter Chris Kalbfleisch modified to shoot over a platinum silver base coat. Finishing off the tank and fender and giving the ride some nostalgic charm are black and white pinstripes laid down by Jason Sprengel of Chester, Illinois.

"It rides straight and doesn't go sideways," T.D. says of the completed Jolly Green Giant. "But it's a very, very powerful engine in a lightweight package. It was a bit of a handful for the first guy who bought it, and he traded it back to me for something else. The current owner, Don Stillwell, has three of my other bikes, and he's not afraid of it at all — he loves to ride it." Engines packing 165 hp can do that to a person.

And that's no mistake.

AIM



TECH SHEET •

Owner: Don Stillwell
Builder: Rods & Rides Motorcycle Company, St. James, MO
Year/model: 2015 Custom
Cost to build: \$24,950
Time to build: Eight weeks
Chromer: "Arkansas Jim," St. James, MO
Polisher: Arkansas Jim
Powdercoater: Brian Uebel, Btu Powder Coating, High Ridge, MO
Painter: Chris Kalbfleisch, Quality Collision & Towing, Columbia, IL
Color: House of Kolor Kandy Green, modified

POWERPLANT

Engine: 2013 Ultima El Bruto
Builder: Ultima
Displacement: 140"
Horsepower: 165
Cases: Ultima
Flywheels: Ultima 4.625"
Cylinders: Ultima 4.40"
Pistons: Ultima 10.8:1
Heads: Ultima
Cam: Ultima .640"-lift
Valves: Ultima 2.300" intake/1.800" exhaust
Rockers: Ultima 93/L
Carb: Mikuni 48mm
Air cleaner: K&N
Exhaust: Rods & Rides Motorcycle Company
Ignition: Ultima
Charging system: All Balls
Cam cover: Rods & Rides Motorcycle Company
Transmission: 2013 Ultima

Mods: Rear drive sprocket conversion
Clutch: BDL
Primary drive: BDL belt
Final drive: Vulcan Engineering Co.

CHASSIS

Frame: 2014 Rods & Rides Motorcycle Company
Rake: 35 degrees
Stretch: 1"
Front forks: Mid-USA 4", under stock
Front wheel: Ridewright Wheels 60-spoke 3.25-26"
Rear wheel: Ridewright Wheels 60-spoke 5.50-18"
Front brake: JayBrake two-piston caliper
Rear brake: DNA four-piston caliper
Front tire: Vee Rubber Monster 120/50-26"
Rear tire: Vee Rubber 200/50-18"
Rear fender: Fat Katz
Fender struts: Rods & Rides Motorcycle Company

ACCESSORIES

Headlight: Bates
Taillight: 1932 Ford LED
Fuel tank: Rods & Rides Motorcycle Company
Oil tank: Rods & Rides Motorcycle Company
Handlebars: Flanders Company
Risers: Rods & Rides Motorcycle Company
Seat: Rich Phillips Seat Co.
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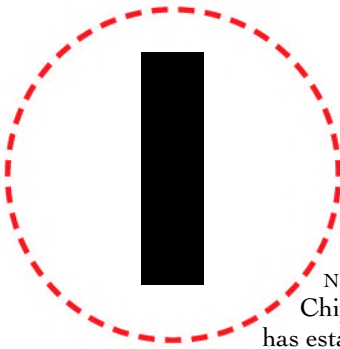
CLASH OF TITANS



text by
wayne scraba

photos by
kevin eilbeck





IN RECENT YEARS, THE BUFFALO Chip in Sturgis, South Dakota, has established itself as a cornerstone of motorcycle lore. In fact, during the Sturgis Motorcycle Rally, the Buffalo Chip scene pretty much becomes an event within an event. It's also the outfit behind one of the coolest educational programs that culminates at the popular motorcycle hoedown. Most recently, the folks behind the Buffalo Chip have been supporting an annual challenge that involves youngsters from local schools that, with help from some very talented and famous builders, allows students to jointly build a custom motorcycle. The resulting challenge bike is eventually auctioned off in support of the Legends Ride during the Sturgis Buffalo Chip Legends Ride. This year, the Buffalo Chip again hooked up with Black Hills resident Keith Terry of Terry Components to come up with a somewhat different challenge for the rally's 75th anniversary this summer.

Rather than build only one custom motorcycle, the students and builders were instructed to build two bikes — one a Harley-Davidson, the other an Indian. In the process, another rivalry emerged from the build: Paul Yaffe served as mentor behind the Harley-Davidson team, while arch but friendly rival John Shope of Dirty Bird Concepts is the Indian crew's chief mastermind, which we featured in the last issue.

This new Buffalo Chip Challenge was open to all Black Hills area high school students, although the program's instructional part remains at Sturgis Brown High School. Instructors included Chad Hedderman and Bill Johnson. At stake for the participating students was a sizable scholarship for three deserving team members (\$5,000, \$2,500, and \$1,000). Keith Terry came up with the design idea and rounded up the parts while Nick and Randy Cramer from Dakota V-Twin performed a huge amount of behind-the-scenes labor on the motorcycles (actually assisting the respective high school teams almost daily with the builds). Paul Yaffe kicked it into overdrive by providing a huge amount of components and hardware for his end of the build, and John Shope provided similar assistance with the Indian bagger.

But the focus here is on the Harley-Davidson Challenge bike. Along with obtaining a truckload of parts, Paul personally spent time mentoring the students. He even came up with the idea of providing personalized embroidered shirts for team members. And if you take a close look at the featured FL bagger, there's no question it wears the stamp of Mr. Yaffe and his Bagger Nation outfit.

The über-cool bagger began life as a 2014 Road King. The frame now sports a 35-degree rake that's matched with a 1"-out and 2"-up stretch. The fork is a 49mm affair fitted with Arlen Ness Hot Legs and an AirFX air ride system. Out back, the Hofmann Designs swingarm is supported by a Legend Air Ride system. The front and rear wheels are from the folks at RC Components, a 26" setup on the front

and a more garden variety 16" hoop out back. Both wheels are wrapped with Vee Rubber tires, and bringing the big bagger to a screeching halt is a single HHI six-piston caliper on the nose, backed by a stock four-piston caliper job on the rear.

The sheet metal changes are considerable. For example, the front and rear fenders, fuel tank, saddlebags, headlight, taillight, filler panels, and other bits come from Paul Yaffe's Bagger Nation arsenal. Ditto for the apehanger bars, trick floorboards, and foot controls. The hand controls are a mix of Harley-Davidson and Arlen Ness pieces. The Brown High School team, with help from the Dakota V-Twin folks, fabri-



cated the seat pan before Danny Gray handled the stitching.

One place that the big Harley really shines is with its powerplant. It's no shrinking violet. Here's why: right from the get-go, the idea was to force-feed the Twin Cam. That's where Trask Performance entered the equation. Nick Trask provided one of his complete Touring Turbo setups, a system that doesn't require internal modifications, and personally helped the students install that turbo. How many people can say that Nick Trask personally installed their turbo? But for this project, the 107" Twin Cam was stripped and refitted with a welded crank that supports Dave Mackie Engineering cylinders, CP 10.5:1 pistons, Mega-Sphere heads,

and a matching pair of Mackie 598L cams.

Downstairs reside a Feuling oil pump, pushrods, and lifters. No surprise that the throttle body, air cleaner, and exhaust are right off the Trask Performance shelves. In terms of grunt, the Big Twin cranks out 165 rear-wheel hp, and that was in a mild state of tune.

Backing up the huffier Twin Cam is a stock Harley-Davidson six-speed Cruise Drive gearbox. The Brown High Yaffe team added a beefy Trask clutch, but, otherwise, the primary drive and final drive are stock.

Once the mechanics and bodywork were pretty much sorted out, the team tore down the bike to haul the bulk of

One place that the
big Harley really
shines is with its
**power-
plant.**
It's no shrinking
violet.



the parts to Black Hills Plating and Polishing. The remainder of metal and plastic pieces were trucked to Jamie's Repair in nearby Rapid City for prep work and base paint. That's also when the gloss black color was laid on. The final touch was a custom flame job by legendary flamethrower Dave Perewitz.

Upon completion, the sleek bagger was buttoned up and in short order hauled to the annual Donnie Smith Bike Show in St. Paul, Minnesota, and 10 students earned the right to travel with the two bikes to the show. For some, it was their first-ever custom bike show (what an introduction!). In the end, the Road King scored second place in the Harley-Davidson Road King Full Custom category. It's obviously a very special accomplishment by a group of aspiring and talented students.

But that's not the end of the story. By the time the Sturgis Motorcycle Rally gets under way this summer, you, along with countless other individuals, will have an opportunity to take home this custom Road King (or the rival Shope crew's Indian). On Monday, August 3, bidders will determine which bike brings the higher dollar during the Legends Ride charity auction. Proceeds from the bike sales go to support the Legends Ride. Proceeds from the ride will support charities such as the Special Olympics Black Hills and the Sturgis Motorcycle Museum & Hall of Fame.

In the end, it all boils down to a fabulous opportunity for

the participating students.

Perhaps Buffalo Chip President

Rod Woodruff sums it up

best: "Our goal is to open the door to new career choices and empower young adults to feel like a job in the motorcycle customization industry is well within their reach." How true.

We doff our helmets to Woodruff and his team for a sizable accomplishment.

AIM



TECH SHEET •

Owner: Sturgis Buffalo Chip Campground ... possibly you!
Builders: Sturgis Brown High School, Sturgis, SD; Paul Yaffe, Paul Yaffe's Bagger Nation; Dakota V-Twin, Spearfish, SD; Terry Components, Spearfish, SD
Year/model: 2014 Harley-Davidson Road King
Polisher/chromer: Black Hills Plating and Polishing, Black Hawk, SD
Painters: Jamie Denholm, Jamie's Repair, Rapid City, SD; Dave Perewitz, Perewitz Cycle Fab, Halifax, MA
Colors: Gloss black with Dave Perewitz custom flames

POWERPLANT

Engine: 2014 Harley-Davidson Twin Cam
Builders: Dakota V-Twin and Sturgis Brown High School
Displacement: 107"
Horsepower: 165
Flywheels: Crank, welded/Timken bearings
Balancing: Dakota V-Twin
Cylinders: Dave Mackie Engineering
Pistons: CP 10.5:1
Heads: Dave Mackie Engineering Mega-Sphere
Cams: Dave Mackie Engineering 598L
Valves: Black Diamond
Lifters: Feuling
Pushrods: Feuling
Throttle body: Horsepower Inc.
Turbo: Trask Performance Touring Turbo
Air cleaner: Trask Performance
Exhaust: Trask Performance
Ignition: ThunderMax fuel management system
Oil pump: Feuling
Primary cover: RC Components

Transmission: 2014 Harley-Davidson six-speed Cruise Drive
Clutch: Trask Performance

CHASSIS

Frame: 2014 Harley-Davidson FL
Rake: 35 degrees
Stretch: 1" out, 2" up
Front forks: 49mm, Arlen Ness Hot Legs
Shocks: AirFX air ride system
Mods: Dakota V-Twin/Hofmann Designs
Swingarm: Hofmann Designs
Front wheel: RC Components 26"
Rear wheel: RC Components 16"
Front brake: Hawg Halters Inc. six-piston caliper
Front tire: Vee Rubber 26"
Rear tire: Vee Rubber 16"
Front fender: Paul Yaffe's Bagger Nation 26"
Rear fender: Paul Yaffe's Bagger Nation

ACCESSORIES

Headlight: Paul Yaffe's Bagger Nation/Dakota V-Twin
Taillight: Paul Yaffe's Bagger Nation
Fuel tank: Paul Yaffe's Bagger Nation
Handlebars: Paul Yaffe's Bagger Nation
Seat: Danny Gray and Dakota V-Twin/Sturgis Brown High School
Speedo: Dakota Digital
Dash: Paul Yaffe's Bagger Nation
License bracket: Paul Yaffe's Bagger Nation
Mirrors: Paul Yaffe's Bagger Nation
Hand controls: Harley-Davidson/Arlen Ness control covers
Foot controls: Paul Yaffe's Bagger Nation



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EVENT • by Tim Remus

28th ANNUAL DENNIS KIRK DONNIE SMITH BIKE SHOW

*More than a custom bike show; it's a
Midwest biker's rite of spring*

ACCORDING TO THE CALENDAR, THE FIRST DAY of spring this year was March 20, which happened to be a Friday. But anyone in the Midwest who rides on two wheels knows that the most significant first day of spring this year was Saturday, March 28. That was opening day of the annual Donnie Smith Bike Show. And rain or shine — or snow — this show opens its doors each year in early spring at the RiverCenter in downtown St. Paul, Minnesota, reminding Midwesterners that there's more to life than snow blowers and ice fishing.

It's been that way for nearly three decades. What started 28 years ago as a simple swap meet has morphed into one of the biggest motorcycle events in the Midwest. It's now the two-day show that is often referred to by locals as The





EVENT

Donnie Show. In fact, its name has morphed, too, and if you didn't know any better, you'd think that Donnie Smith, one of America's leading custom bike builders, had partnered with a guy named Dennis Kirk. In recent years, the show's official title has been the Dennis Kirk Donnie Smith Bike Show & Car Show Parts Extravaganza, and, yes, there are cars involved, too. Dennis Kirk, of course, is the name of the huge mail-order motorcycle parts business that anchors itself in Minnesota.

Because this show reminds Midwesterners that the cold weather and snow that keeps us off our bikes for nearly six months of the year are on the wane, The Donnie Show is treated like a rite of spring. And like a robin bob-bob-bobbin' along in the front yard, The Donnie Show also announces the beginning of the riding season.

No longer merely a swap meet, The Donnie Show includes a first-class bike show, complete with a Pro Class corral filled with custom bikes of the highest order. After all, it's an invitational show, so Donnie can be selective about pro entries. This year, more than 200 bikes filled the arena to compete in all classes for an abundance of trophies.

Not content to simply expand the size of the motorcycle show, Donnie added cars to the long list of entertainment last year. One floor level up from the

bike show, motorheads were treated to more than 60 hot rods, street rods, and old-skool customs, plus vendors. The combination of swap meet, bike show, and car show was enough to attract 20,000-plus enthusiasts. No doubt, the fish in more than a few of Minnesota's 10,000 ice-covered lakes got the weekend off.

For bikers, The Donnie Show is more than just a show. It's a huge social event for anyone even loosely associated with the two-wheeled community in Minnesota and surrounding states. Just walk the aisles, and you'll see familiar faces you haven't seen

all winter. And everybody, it seems, is smiling from ear to ear, happy to be out of the house, immersed in a sea of custom and classic motorcycles.

The competition for a plaque or award infects everyone at the show, from graybeards with their restored Knuckleheads to high-school kids who've busied themselves all winter building custom bikes. Perhaps the best known of the competing high school students this year were the two Buffalo Chip Challenge/Legends Collide teams.

Each team, led and inspired by a custom industry legend, worked hard to create the ultimate custom bagger. Though most of the work was performed at Sturgis Brown High School in Sturgis, South Dakota, students from five different Black Hills schools participated in building the two bikes. The team led by Paul Yaffe (see page 88), won second place in the Harley Road King 26" Wheel (Full Custom) category with its 2014 Road King. The competing



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SOUTH POINT

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team, led by John Shope of Dirty Bird Concepts (issue #325), took the first-place trophy in the Full Custom/Other Bagger class with its 2014 Indian Chieftain.

More competing high school teams could be found one aisle over from the Buffalo Chip Challenge. They were part of the Donnie Smith Chopper Bike Challenge. For 10 years, high school teams from various parts of the country have worked hard to build cool choppers with hopes of displaying them at the annual Donnie Smith Bike Show. This year, only two of the 11 competing teams could make the trip to St. Paul: Eden Chopper Class from New York and Mitchell Tech from South Dakota showed up.

And the man who really started the whole High School Chopper Class phenomenon, Kevin Bass, of Kennedy High School in Bloomington, Minnesota, was also stationed at the show. Kevin brought along a crew of students and their builds, including the bike built for S&S Cycle's 55th Anniversary Student Build Challenge.

Donnie's birthday happens to be March 28, so the show is also a part-birthday celebration for one of custom bike building's true pioneers. Thus it's only appropriate that one



of his longtime, bike-building friends Dave Perewitz attends the show along with his Bonneville record-holding daughter, Jody Perewitz. In fact, it was David and Jody who handed out one of the first trophies, Best Paint.

Additional trophies include all the standard categories with just a few extras thrown in. There are 35 Open Classes (nonpro), with first-, second-, and third-place awards given



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THE ART OF ORIGINALITY.



in nearly every class. For baggers alone, there were 11 separate classes; Shovelheads and Softails had three each. Let's not forget hardtail customs along with mild and full-custom categories, and the list goes on.

But in truth, all eyes were on the Pro Classes, of which there were only two, Custom and Bagger. As you'd expect, competition was fierce, with only first-, second-, and third-place trophies handed out for each category.

The Donnie Smith Show is a lot of things: custom bike show, swap meet, car show, and biker party. Above all, though, it's one of the best kick-ass bike events you'll experience. So mark your 2016 calendar now; next year's Donnie Smith Show will be

held April 2-3. And remember, Midwesterners, that Saturday marks the first day of spring 2016. Just be sure to leave the snow blower at home. **AIM**



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Summer Riding Protection - A Smart Idea



BY KEN FREUND
Popular long-time moto-journalist
Ken Freund checks out the
Bohn Bodyguard System

With summer coming, we'll soon be faced with the usual dilemma of what to wear while riding in hot weather. Although I enjoy riding with my friends on their Harleys through the hills over to the coast on a hot day, I do get tired of being the butt of their jokes about me riding with full protective gear.

It's really tempting to ride wearing T-shirts and jeans like they do, especially around town, when temperatures are up around three digits.

I'm a safe rider with hundreds of thousands of riding miles behind me, but as I get older I don't think I'm invincible like we all did in our teenage years.

Don't get me wrong, I'm not some risk-averse pansy, but I was an EMT, and know what can happen to even the best riders.

We used to say "hope for the best, but prepare for the worst."

We've all heard the stories of animals running out in the road, fuel spills, sand, you name it. Today there are so many driver distractions, with seemingly everyone texting or talking on a cell phone. Even if you're the world's best rider, things sometimes go terribly wrong in a heartbeat. As a result, I just won't ride unprotected.



A Good Solution

I recently found out about Bohn's flexible hidden armor which can be worn beneath riding jerseys and jeans. After hearing about them from several riders I finally got some. They're even made here in the U.S. of A.!

Bohn's Bodyguard System -- armored undershirts and pants, combine comfort with protection and

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they are cool. Now you can have smart and comfortable protection that looks casual.

Bohn Shirts include armor in the shoulders, plus arm/elbow and a flow-through back pad. Made from a mesh material like that of athletic jerseys, you can wear them as a lightweight jacket, or under your old favorite jacket. There's also a CoolAir Mesh option for extreme heat and humidity.

I'd also seen the ads and heard good things about **Bohn's Adventure Pants** - you wear them under your jeans. There's armor in all the places you might land on in a fall.

I initially thought they'd be too hot in summer, but found them to be very breathable, so you'll hardly notice you have them on. You can also get these in CoolAir mesh if heat's your issue. These items are well made, should last for years, and are versatile. Washing's easy in a machine or sink. You can also get spare "shells" in mesh or heavier winter material. Sounds a great idea for tours and

vacations at under \$300 for a full set. A lot of sensible Harley riding women, riders and passengers, wear Bohn gear too.



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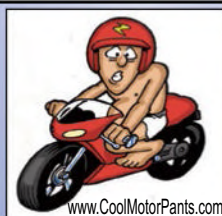
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Ken Freund

PS: I meant to add that most people can't tell I'm even wearing this stuff!

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T

HIS BIKE HAD US AND MANY OTHERS momentarily fooled. At first glance it may look like what's become known as a Magnum, a K model or 45 flathead 750 bottom end topped with Ironhead Sportster cylinders and heads. Other people even thought that it's an early Shovelhead. But it's really a chopped Sportster engine in an old Panhead rigid frame.

The old story about the English bike invasion of the 1950s is familiar to many bikers even today, but let's go through it again anyway because it partially explains the origins of this custom. After all, the Brit bike invasion was what led to the creation of today's Sportster.

The superbikes of the 1950s were typically 650cc twins from Triumph, Norton, BSA, and others. Those bikes were nimble and lightweight, so they easily outperformed the lumbering Harley Big Twins. Something had to be done. The bosses in Milwaukee needed a lighter bike with a unit construction engine/gearbox and rear suspension similar to what the Brits offered. Harley's first attempt, the 1952 side-valve K model was slow and heavy, and few riders were impressed. (Elvis Presley was a notable exception.) Today, the rare K flathead is an extremely sought-after collector's item, but in 1957, it was replaced by the overhead-valve Sportster XL. Harley had struck pay dirt.

Then, in 1959, came the even hotter XLCH model Sportster. Legend has it that the *CH* stands for Competition Hot, but some motorcycle historians claim the meaning of CH is instead Competition — High Compression. Pretty logical since the bike did, indeed, have higher compression (as well as hotter cams) than the standard XL Sporty.



Sigbjorn Nilsen is a bike builder from Norway who considers himself to be among the believers of the Competition Hot theory. A former plumber who currently teaches plumbing at a vocational school, Sigbjorn also considers himself to be a long-fork chopper dude. But for this project, he took a different approach, gathering parts that had been collecting dust in his garage to build a custom boasting some historic hardware.

"I had this 1950 Panhead rigid frame left over from a previous project," Sigbjorn recalls. "Then I won a bike show, and the first prize was a brand-new Ultima El Bruto engine! I immediately sold it because I knew an old geezer who had a 1967 Sportster for sale." Sigbjorn used the cash to buy that bike.



Choosing a '67 was a clever move because of Norwegian bike-building laws. In Norway, the engine defines a vehicle's model year (unlike some other countries where it's the frame that counts). Radically customizing a newer bike is a no-no in Norway, but if the bike happens to be 30 years or older, you can pretty much do whatever you want. Like cutting off the gearbox, right?

"Yeah," Sigbjorn agrees about slicing off the XL transmission. "That's a modification drag racers used to do back in the 1970s. Sportsters can be revved higher

than Big Twins because of their four cams, but the gearbox is the Achilles' heel. I'm very inspired by vintage drag racing, so I decided to go for it."

The chopping operation proved to be fairly easy since the gearbox has its own separate space within the engine cases. Of course, some new motor mounts were needed,

Art meets art. The curvaceous bridge in the background is nicknamed "The Dinosaur" by the locals in Ski and was designed from sketches by Leonardo da Vinci.



so Sigbjorn got some help with the aluminum welding from a skilled biker buddy named Tom Flatby. Ironically, the Sportster gearbox was replaced with an Ultima six-speed.

"Today I'm not completely happy about that Ultima," says Sigbjorn. "An old four-speed would have matched the style better, but at the same time, it's more comfortable on the road to have a six-speed."

AN IRONHEAD SPORTSTER motor in a rigid Panhead frame is a weird mix, and the rest of the accessories that he included make it even stranger — even though everything makes for a harmonious blend. For instance, Sigbjorn likes to use inexpensive Harley parts from swap meets rather than spend his cash on more costly custom stuff from fat aftermarket catalogs. Check out the 1987 FXR front fork, the 2002 Sportster foot controls, and the front and rear 2005 Softail brakes. Sigbjorn has a favorite pun in Norwegian: "Some folks like billet, but I like billigt," billigt meaning cheap!

An old 1948 BSA Bantam gas tank along with a 1939 Nash spotlight up front and a taillight made out of a Maglite torch, completes the weirdness. Truly a billigt bike!

During the build, Sigbjorn took the half-finished bike out for some test rides. One day a cop pulled him over during an illegal foray on the street, citing him for no mufflers, no lights, no tax or insurance, or anything.

"I told them I had no choice but to put the bike on the road if I wanted to adjust the carb right," Sigbjorn remem-



bers. "They just gave me a slap on the wrist and told me 'Okay, go right ahead, but just make sure you don't get busted by the police!'"

Normally a chopper dude, Sigbjorn appreciates the quick handling of his agile little Sporty. But after months of riding only the new bike, he decided to take a ride on his old, long-fork Big Twin that had been left to collect dust all summer. The difference in handling was remarkable.

"Man, I was shocked!" he exclaims. "There's just no substitute for that awesome chopper experience. The Sportster is sporty, but my big bike still has a lot more feeling; it's simply much more of a motorcycle. I have some plans for my next project already — and it will definitely be a Big Twin chopper!" **AIM**

TECH SHEET •

Owner: Sigbjorn Nilsen, Ski, Norway
Builder: Sigbjorn Nilsen
Year/model: 1967 Harley-Davidson Sportster
Painters: Glenn Sandtorp and Pål Steenersen
Colors: Candy Apple on Silver Glowble metalflake

POWERPLANT

Engine: 1967 Harley-Davidson Sportster
Displacement: 900cc
Cams: Stock
Carb: S&S Cycle Super E
Exhaust: Fabricated by Sigbjorn Nilsen
Transmission: Ultima six-speed
Ignition: Morris magneto
Primary drive: BDL 1-1/2" belt drive
Clutch: BDL

CHASSIS

Frame: 1950 Harley-Davidson Panhead
Rake: Stock

Stretch: Stock
Front forks: 1987 Harley-Davidson FXR
Front wheel: Harley-Davidson Sportster hub, steel rim, 18"
Rear wheel: Harley-Davidson Big Twin hub, steel rim, 18"
Front brake: 2005 Harley-Davidson Softail
Rear brake: 2005 Harley-Davidson Softail
Front tire: Coker Tire Diamond 4.50-18"
Rear tire: Coker Tire Diamond 4.50-18"
Rear fender: Harley-Davidson Sportster

ACCESSORIES

Headlight: 1939 Nash spotlight
Taillight: Maglite
Gas tank: 1948 BSA Bantam
Oil tank: Fabricated by Sigbjorn Nilsen
Handlebars: Motocross
Seat: Aftermarket
Hand controls: Grimeca/Biltwell
Foot controls: 2002 Harley-Davidson Sportster

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GUNNER BOBBER BUILD II

Kyle at Speed Foundry is transforming a stock Victory Gunner into a cool bobber!

WE LEFT OFF LAST MONTH WITH KYLE Shorey of Speed Foundry setting up the rolling chassis on the Victory Gunner that appeared on his doorstep. Earlier this summer, Victory Motorcycles sent a brand-new Gunner to Kyle telling him to turn it into a cool bobber and then bring it to the 2015 Sturgis Motorcycle Rally.

With no further instructions from Victory, except for specifying that he has full creative license to do whatever he pleases with the Gunner, Kyle set to work. What was once a mean-looking muscle cruiser in stock form quickly became little more than a frame and an engine. Making the bike a roller so that Kyle could then visualize the direction he wanted to go with sheet metal was priority one. He started with Speed Foundry's new, made-in-the-US springer front end that he designed specifically for late-model Softails. It has a beefier feel than others on the market to better flow with the girth of modern Twin Cams. It also works perfectly with the Gunner, which is also a wide bike, albeit with some modifications by Kyle. A wide 240 Metzeler tire out back will keep the muscular bike in check, while a pair of 60-spoke Ride Wright wheels will give it a true bobber feel.

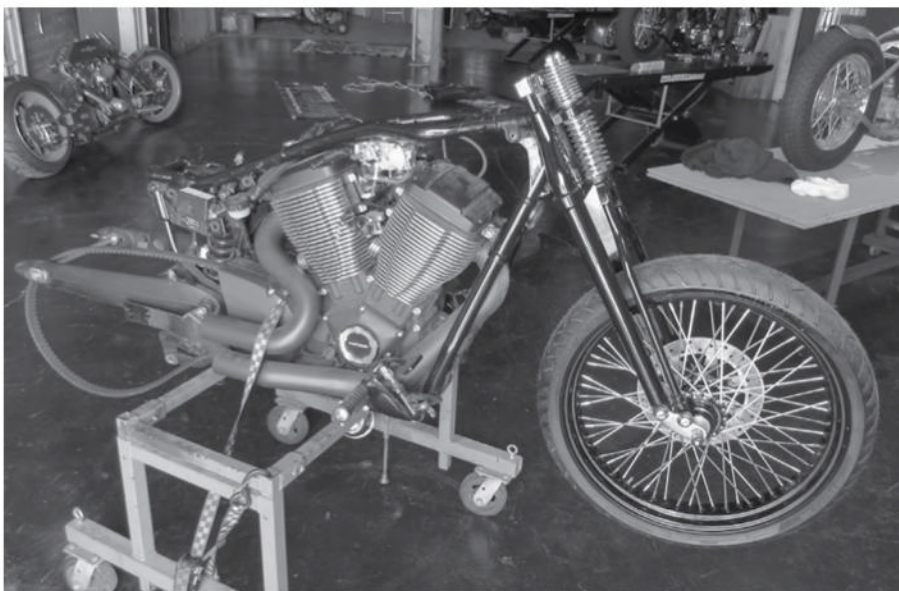
At the 75th Sturgis Motorcycle Rally, Victory Motorcycles is hosting a Victory owner's ride and party at the Buffalo Chip with the guest of honor being this custom Gunner. The custom Gunner will be available for viewing before the ride, which starts at The Lodge at Deadwood in Deadwood, South Dakota, at 2 pm on Thursday, August 6.

Then Kyle will ride his custom creation with the other Victory owners on a self-guided tour to the Sturgis Buffalo Chip. Keep in mind, the ride and preride reception are paid events for Victory owners only. However, at 5 pm that same day, the bike will be available for viewing at the Buffalo Chip in the Russ Brown Event Center, which is free for anyone to enter. So be sure to stop by, meet Kyle Shorey, and view his beautiful creation in person.

This month, Kyle's finishing up with the rolling stock by adding a Ride Wright brake rotor and pulley to the rear wheel. He's also using another one of his own parts, a 5-1/2" black headlight with brass trim ring. We also get to see the makings of a new exhaust system being mounted on the Gunner, one that's sure to be unlike anything ever seen on a Victory.

Kyle is also starting to tackle the bodywork and rider ergonomics this month. He's removed the fuel pump so he can cut out the center channel of the

I Here's where we left off in the last issue. The springer and front wheel are installed for the mockup. Kyle has already cut the frame's rear fender supports off with a portable bandsaw.



2 Kyle's first step is to test-fit one of his headlight assemblies to see if it looks right with the front end. It does, so he'll fabricate a mounting bracket later on.

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3 Kyle now installs the new Ride Wright drive pulley onto the new Ride Wright 60-spoke rear wheel using Gardner-Westcott stainless steel bolts, red Loctite, and a 12-point 7/16" socket.



4 The new Ride Wright chrome rear brake rotor goes on next using new Gardner-Westcott chrome bolts, red Loctite, and a T-45 Torx.



5 After Kyle has the new 240/40-18" Metzeler 880 Marathon tire mounted onto the new Ride Wright 18" 60-spoke rear wheel at A Biker's Garage, he tops off the tire pressure at 40 psi.

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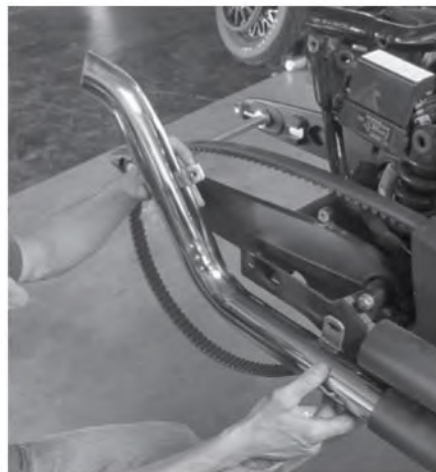
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6 Kyle then checks to see how much upsweep he wants in the new pipes he's making for the Gunner.



7 Once he has it the way he wants, Kyle test-fits both pipes to see what kind of bracketry he'll need to fabricate to make it all work.



8 Before he test-fits the stock gas tank, Kyle removes the fuel pump assembly from the underside of the tank using an 8mm nutdriver.



9 He then positions the tank onto the bike and makes his rough cut lines using a black marker. The cutting wheel comes out next.



10 The only part Kyle's going to use from the old tank is its underside, so he can reuse all the stock fuel pump mounting attachments and the other stock parts needed for the Gunner's fuel system.



11 Even though the tank has not been made yet, Kyle can still see how one of his custom bobber seats will look on the bobbed Gunner and how he has to attach it.

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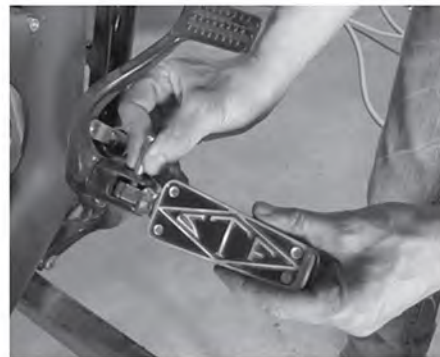


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12 Kyle then checks out one of his custom footpegs on the stock Gunner foot controls. Yup! That'll work just fine, too.

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stock tank. Due to the Gunner's dual backbone frame and updraft air intake, he's going to be reusing the underside of the tank to build a new custom tank. He can also mock up one of Speed Foundry's direct bolt-on custom seats for Softails. The dimensions work with the Gunner's frame, but Kyle has to come up with a way to mount it. His custom footpegs, again, designed for Softails, actually fit perfectly onto the Gunner foot controls nicely.

Besides building a custom Victory to bring to Sturgis, Kyle is using this project to develop a line of parts for other Gunner owners. Just about everything shown here, including that killer front end, will be available for other Victory owners.

Next month, we'll show the bodywork that Kyle came up with for this project. For the time being, check out Kyle's progress so far. **AIM**

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DYNA UPGRADES

Part II: BST carbon fiber front wheel

LAST MONTH, WE FOLLOWED ALONG AS JODY Perewitz' new Dyna began its Perewitz Cycle Fab makeover. That means two things. First, no effort will be spared to make this the best possible bike it can be, which is the standard Dave Perewitz put in place decades ago. Second, this Dyna will be built for speed.

Many of us think about speed and performance from an engine standpoint. Simply put, get more fuel and air into and out of the engine. But another part of the equation involves weight reduction. You can easily shave 50 pounds off a Dyna, but you're still left with a 600-pound cruiser. The key is to cut down on the bike's unsprung weight, which is where you can actually make some significant percentage drops. That's what racers all over the world do, and that's exactly what Jody does with her Land Speed Racer V-twin.

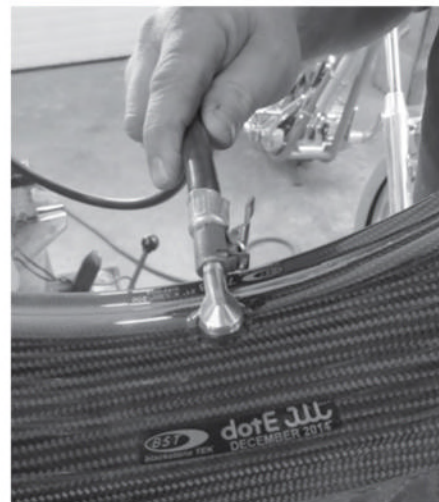
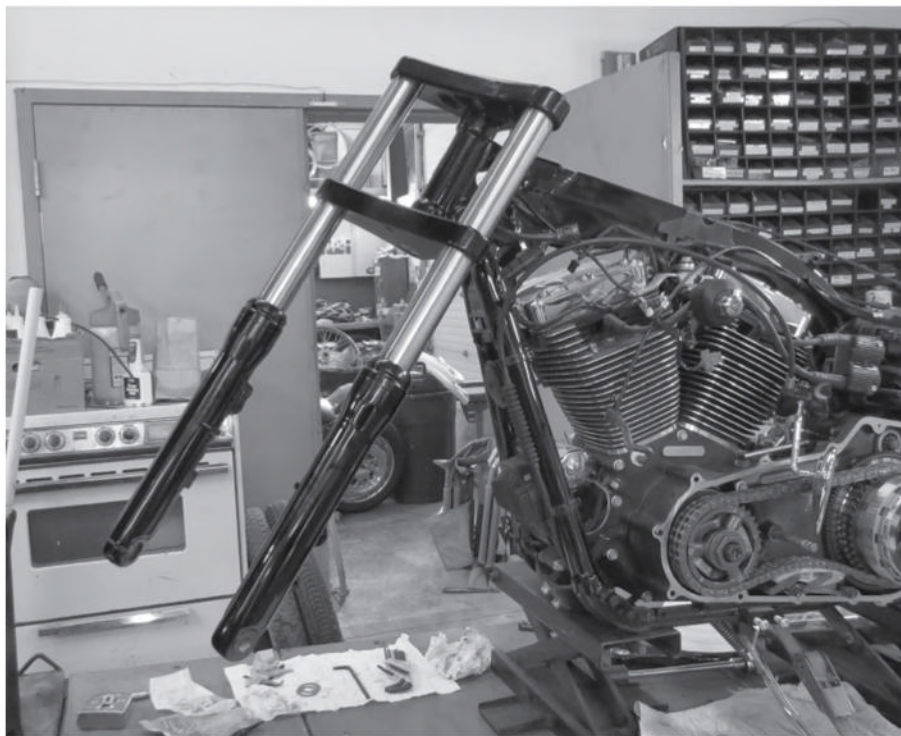
For the ultimate in unsprung weight reduction, Jody decided to go with a set of BST carbon fiber wheels from Brock's Performance. Specifically, the front wheel is a 3.00-21". BST carbon fiber wheels weigh 40-60 percent less than stock wheels, which provide for some major riding advantages. Acceleration is going to be greatly improved because there's less weight to get rolling. Other major

improvements are in the bike's handling and comfort. Even with the best suspension system available, lighter wheels are going to make the bike easier to lean over and countersteer. Also, lighter wheels are easier for the suspension to control when going over bumps or into depressions. There's less force for the springs and dampers to deal with, allowing the wheel to more quickly return to its original position.

TOOLS NEEDED

- Blue Loctite
- Anti-seize
- Flat-bladed screwdriver
- 3/16" Allen
- 1/4" Allen
- 5/16" Allen
- 7/16" socket
- 15/16" socket
- Torque wrench (in-lbs.)
- Torque wrench (ft-lbs.)
- Gap gauge ■

Here's where we left off in the last issue. The HHI front triple trees are installed and the stock fork legs, with the lowers painted black, are back in place and ready to receive the new Brock Performance-supplied BST carbon fiber wheel.



2 After mounting the new 120/70-21" Avon Cobra tire onto the new BST carbon fiber front wheel from Brock's Performance, Jay tops off the tire pressure at 40 psi.



3 Jay then mounts both Lyndall ceramic composite brake rotors using some blue Loctite and a 3/16" Allen. Jay torques the bolts to 25 ft-lbs.



4 After he puts the wheel between the fork legs, Jay lifts the bike so the axle holes on the front end and wheel are aligned. He then slips in the HHI axle that comes with the trees he installed in the last issue.



5 Wheel spacers are not supplied, so Jay must make them. He centers the wheel between the fork legs by measuring each side and then positions the wheel so it's an equal distance from both legs.

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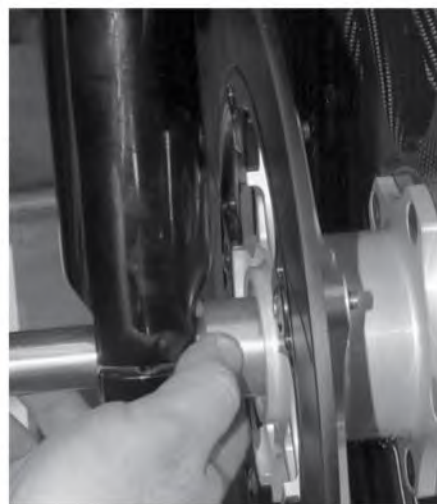
Greaserag.com 



6 He then measures the gap on each side of the wheel from the outer face of the wheel bearings (left and right) to the inner face of each fork leg. He also measures how wide they should be.



7 Our right spacer needs to be 1.650" long, the left 1.400" long. Both should be 1.500" in diameter (wide) with a 29/32" or 1" center hole. Jay makes them on the shop lathe.



8 After putting a skin coat of anti-seize on the axle, Jay starts the axle in the right fork leg and positions his new spacer between the leg and wheel.

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9 After sending the axle partway through the wheel, Jay positions the left spacer between the wheel and left fork leg. He then sends the axle the rest of the way through.



10 Jay can now slip the stock axle flat washer and lock washer onto the axle, followed by the stock axle nut, which he torques to 62-67 ft-lbs. using a 15/16" socket.



11 Using a 1/4" Allen, Jay torques the two bolts at the bottom of the right fork leg to 35 ft-lbs.

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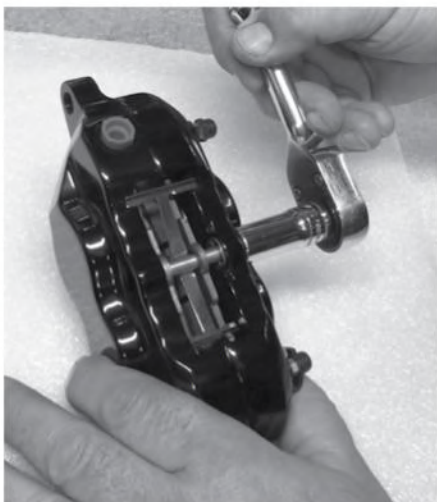


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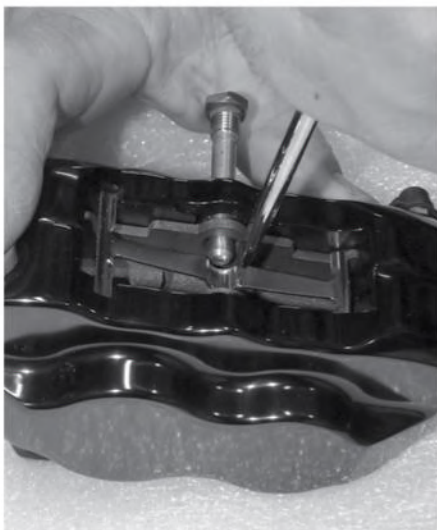




12 To swap out the HHI pads for the special Lyndall pads that must be used with these brake rotors, Jay uses a flat-bladed screwdriver to first remove the clip that's on the center bolt.



13 Jay then uses a 7/16" socket to remove the anti-rattle spring clip holddown bolt.



14 You may have to press down on the anti-rattle clip with the screwdriver to get the bolt out.



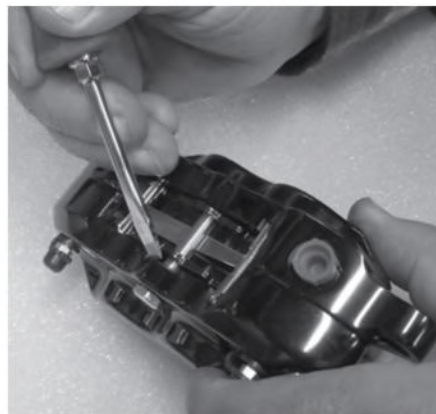
15 The clip and both brake pads are then pulled from the HHI caliper. The new pads are then positioned as shown and slipped into the caliper. These pads fit into recesses in the caliper body.



16 The anti-rattle spring clip gets reinstalled by catching the side of the clip first and then just dropping the other side into its recess in the caliper body.



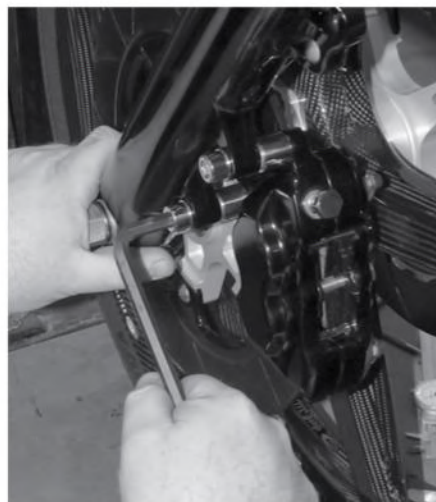
17 Jay then uses a 7/16" socket to reinstall the anti-rattle spring clip holddown bolt.



18 The final step on the pad swap is to reinstall the anti-rattle spring clip holddown bolt clip using a flat-bladed screwdriver.



19 The caliper can then be installed onto the fork leg using the HHI spacer, flat washer, and bolt. Jay doesn't install any shims now. He first needs to see how the caliper aligns to the centerline of the rotor.



20 Jay tightens the two caliper bolts to 28-38 ft.-lbs. using a 5/16" Allen.

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The third major area of improvement is braking. With less weight to clamp onto and slow down, a motorcycle's brakes can stop the spinning wheel in a shorter distance.

Braking performance is paramount on a streetbike, and like with the BST carbon fiber wheels, Jody is taking this Dyna to the max. Not one, but two

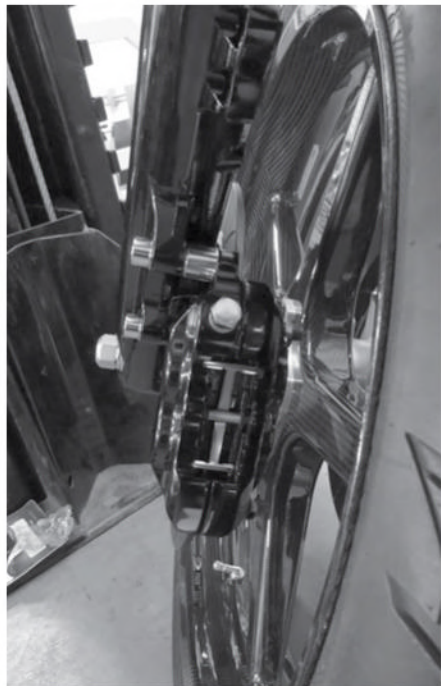
black anodized, Hawg Halters (HHI) six-piston direct bolt-on calipers (right: #RHSAB501, left #LHSAB501) are going on either side of the BST wheel to ensure crisp braking feel and maximum braking power. HHI's calipers are built for bikes that go as well as they show, and they match beautifully with the Dyna's forks and HHI triple

trees. HHI has a bunch of different fitments that work with Dynas, Touring bikes, Softails, Sportsters, V-Rods, and custom applications.

Continuing with the no-compromise aspect of looks and performance, Jody chose a pair of black Lyndall Brake rotors for this project. Lyndall's rotors look great against the carbon fiber wheel, provide a long service life, clean and quiet operation, and they weigh in at only 1.6 pounds each. That means Jody has to also run Lyndall brake pads inside the HHI calipers. Combining Lyndall's pads and rotors make for a cool-running, noiseless, dustless, and long-lasting brake system.

Lastly, the crew at Perewitz Cycle Fab loves the quality and consistency of Russ Wernimont Designs (RWD) sheet metal, so an RWD front fender is being custom-mounted to the front end of Jody's bike. RWD fenders are made from heavy gauge steel, and each one is inspected to ensure straightness, consistency, and a flawless finish. Each style of fender is available in different widths and can be ordered predrilled or not.

Jay and Jon at Perewitz Cycle Fab are doing the work on Jody's Dyna Low Rider and showing us step by step how to install an entirely custom wheel and brake package. Next month, we'll show the swingarm, rear wheel, sprocket, and brake system being installed at Cycle Fab. **AIM**



21 He checks that the centerline of the caliper body aligns with the centerline of the rotor. If it doesn't, Jay will shim the caliper with the HHI shims to make it so. He then does the same to the other caliper.



23 Once the fender is installed, Jon makes some preliminary marks regarding the first cuts he'll make to fit the fender to this particular wheel and install. More cuts will follow, but not in this article.



22 Jon uses the RWD-supplied spacers and chrome hardware they had at the Cycle Fab shop to install the RWD front fender blank.



24 Here's how the finished install looks without the front fender.

SOURCES

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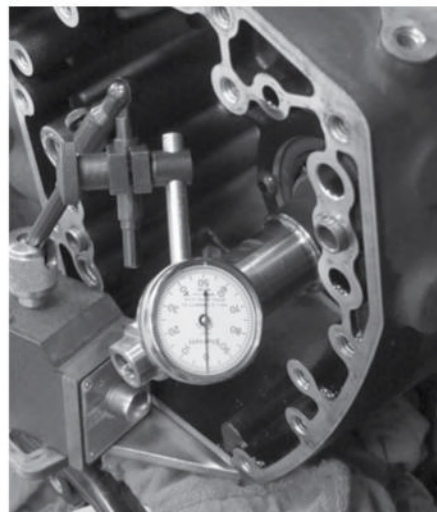
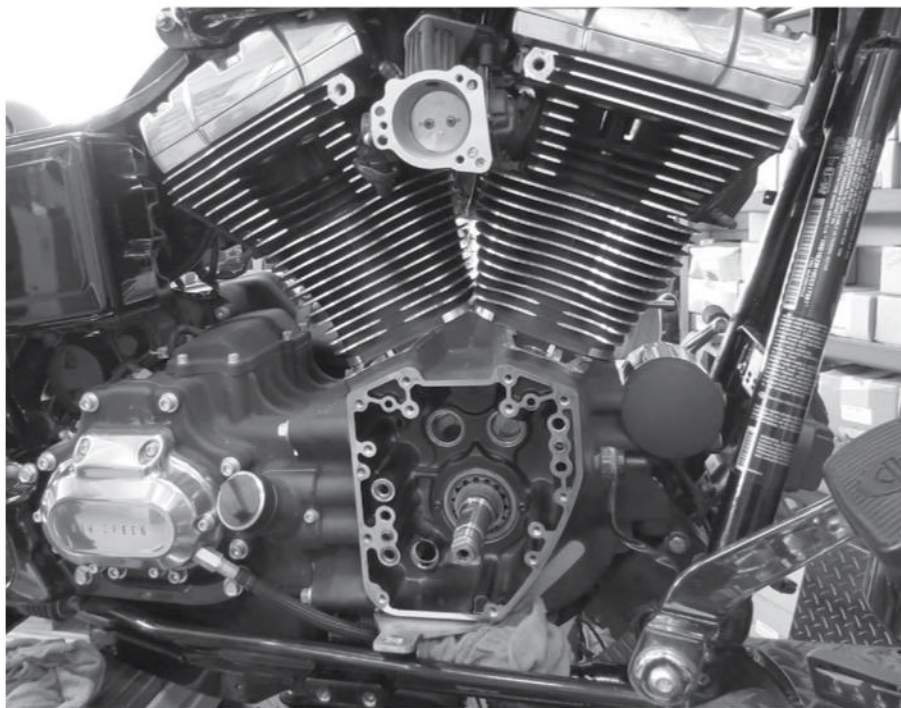
A GOOD SET OF CAMS CAN WAKE UP EVEN AN already spirited motorcycle. The Dyna Switchback with its 103" Twin Cam powerplant packs a punch, thanks to its light weight and quick handling. Our test Switchback already has a set of performance slip-on mufflers and a S&S air cleaner, but there's always room for improvement, and so it's time to pop open the cam chest.

For this project, we turned to Zipper's Performance for a pair of its Red Shift 527 chain drive cams (#413907S/\$374.95), which are a bolt-in cam set designed to be used in stock 2007 and later 96"-110" engines. One of the nice features of the cam is that we can use the stock conical valve springs, taking a lot of additional labor out of the equation. We also decided to try out Zipper's new Red Shift dual-piston cam chain tensioners (#413-901/\$159.95). The Red Shift tensioner is a great upgrade even in stock motors, especially ones that see a lot of mileage. These tensioners improve cam chain tension stability, hydraulic performance, and valve-

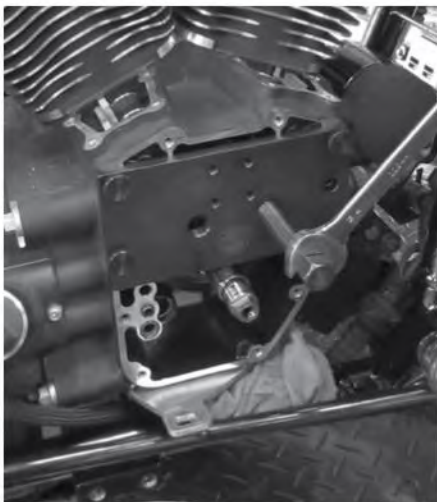
Our 2012 Dyna Switchback is up on John's lift with the valvetrain, air cleaner, and exhaust removed. The gearcase compartment has also been emptied.

TOOLS NEEDED

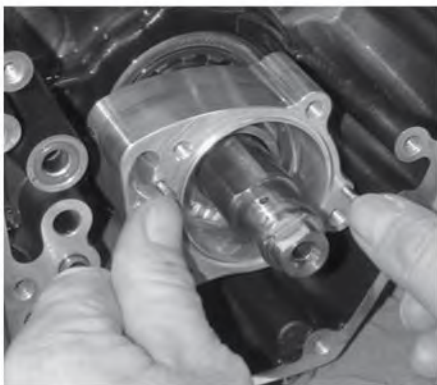
- Blue Loctite
- Red Loctite
- Assembly lube
- 3/16" Allen
- 7/16" wrench (2)
- 5/16" socket (12-point)
- 1/2" socket
- 9/16" socket
- Flat-bladed screwdriver
- Expanding snap ring pliers
- Steel straightedge
- Flat feeler gauge
- Torque wrench (in-lbs.)
- Torque wrench (ft-lbs.)
- Sprocket lock (JIMS #994-1)
- Dial indicator
- Inner bearing removal tool
- Inner bearing installation tool ■



2 The first step is to check the pinion shaft runout using a dial indicator. Ours is 0.002", which is within spec and safe for the new Feuling oil pump.



3 John then removes the old inner cam bearings and replaces them with new Torrington bearings using inner bearing removal and installation tools. He then thoroughly cleans and dries the Feuling oil pump housing.



4 John puts the Feuling O-ring on the pump's pickup and installs the pump in the case. He coats the pinion shaft and inside of the pump with lube and slips the two Feuling dowel pins into the face of the scavenger housing.



5 After coating the Feuling scavenger gerotors with lube, John installs the gerotors into their housing by aligning the flat sections with the pinion shaft. He then puts the Feuling O-ring into its groove in the housing.

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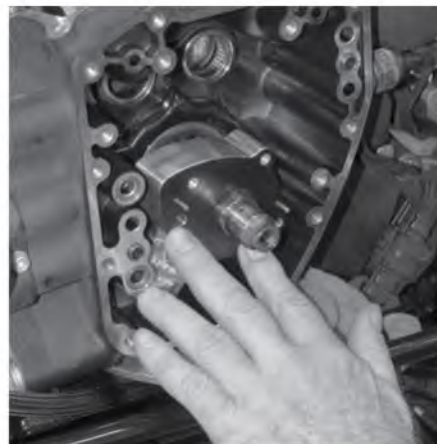
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6 John slips the Feuling separator plate over the dowel pins and against the scavenger housing. He then puts a Feuling-supplied O-ring into its groove on the inner face of the pressure pump housing.



7 John then positions the outer half of the Feuling oil pump body onto the Feuling separator plate and over the dowel pins.



8 After putting a Feuling O-ring into its groove on the inner face of the pressure pump housing and coating the Feuling gerotors with lube, John installs the gerotors by aligning their flat sections with the shaft.



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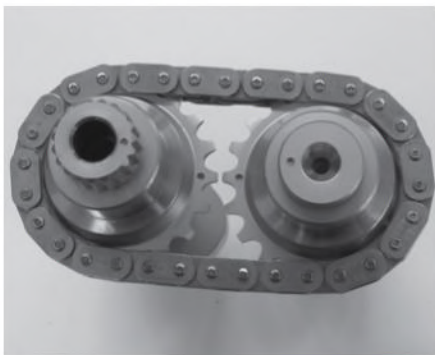
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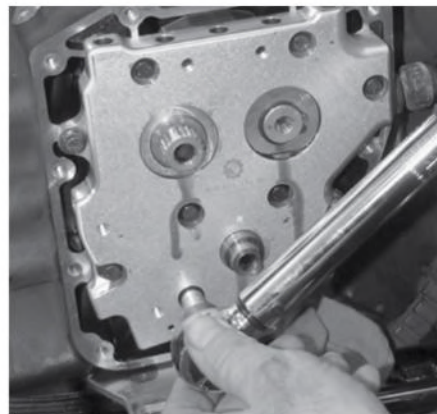




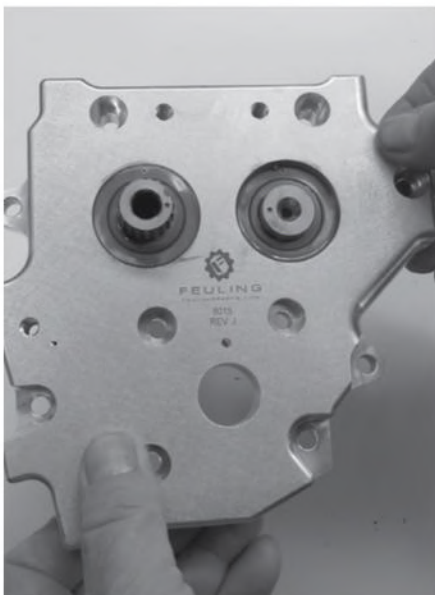
9 After he puts the Feuling-supplied O-ring into its groove in the pump housing, John positions the new Zipper's cams in the stock (short) inner drive chain with their timing dots aligned.



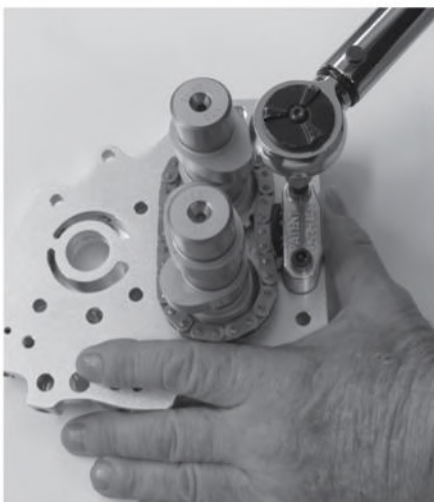
12 Using an expanding snap ring pliers, John installs a new outer retaining ring onto the outer end of the front Zipper's cam.



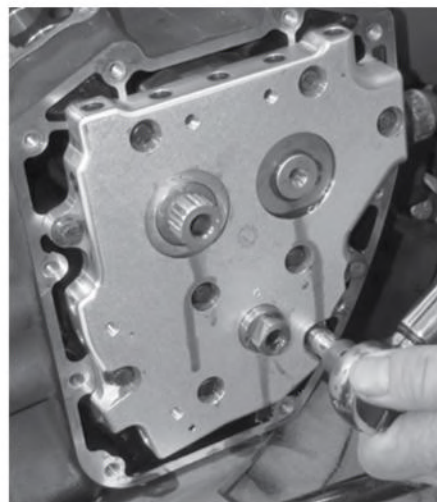
15 After doing the same for the four (longer) pump bolts, John spins the engine several times and then torques the plate bolts using a 5/16" 12-point socket as per the H-D pattern to a final torque of 90-120 in-lbs.



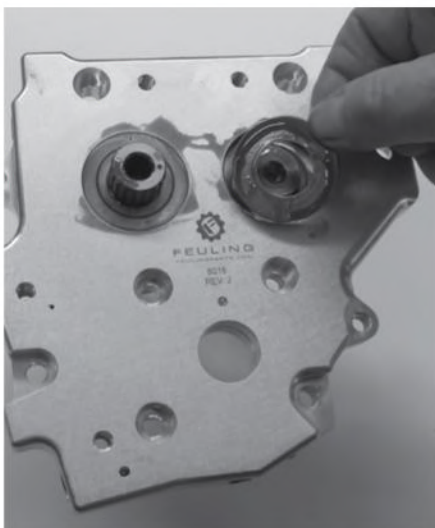
10 After coating the Feuling cam support plate with assembly lube, John positions the Feuling cam support plate onto the Zipper's cams, noting that the timing marks have not moved.



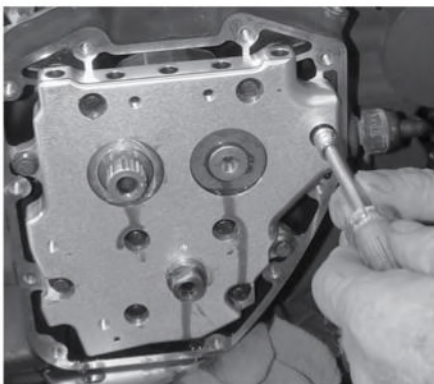
13 After prepping the new Zipper's inner hydraulic tensioner, John installs it onto the support plate using the Zipper's bolts, blue Loctite, and a 3/16" Allen. He torques the bolts to 90-120 in-lbs. as per their instructions.



16 John then spins the engine several more times to center the oil pump and torques the pump bolts to 10 in-lbs. using a 5/16" 12-point socket in a crisscross pattern. He then spins the engine again and torques the bolts to 90-120 in-lbs.



11 He then puts the stock 0.100" shim on the outer end of the front Zipper's cam.



14 With lube on the Zipper's cams and Feuling moly lube on the new Feuling bolts, John installs the Feuling plate using the six (short) Feuling bolts, which he installs only snug for now, and a 5/16" 12-point socket.



17 John then positions the stock rear cam sprocket shim on the rear camshaft.

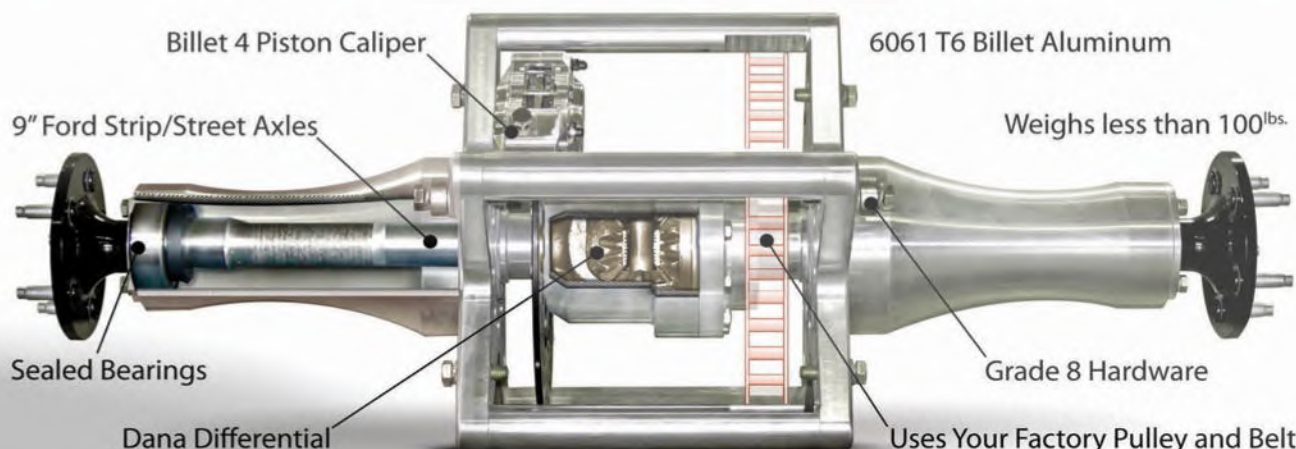
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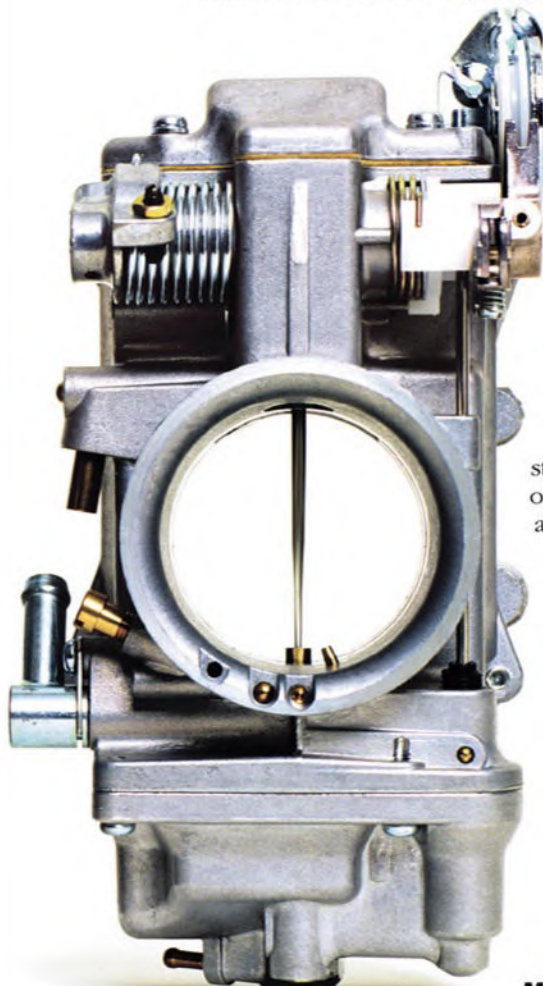
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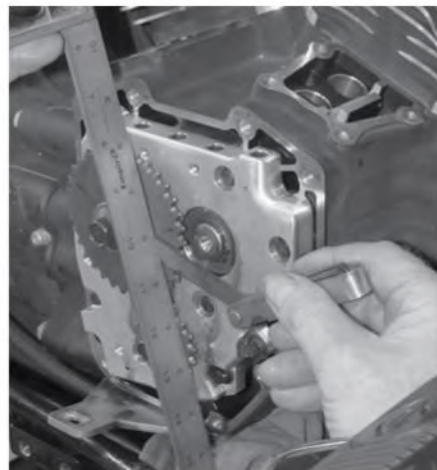
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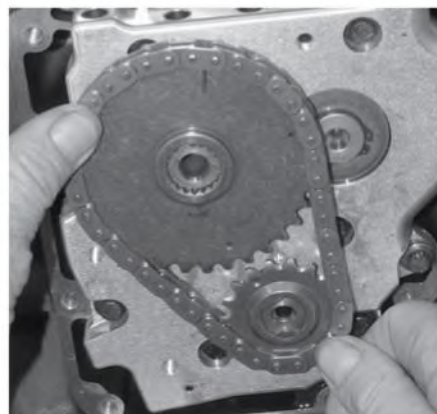


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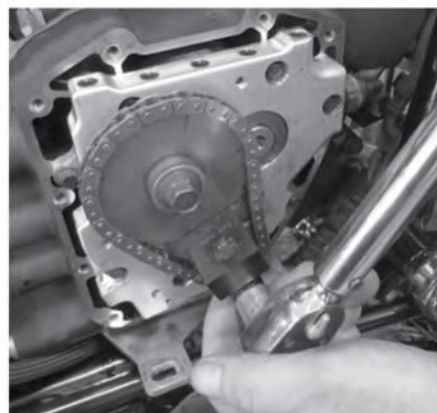
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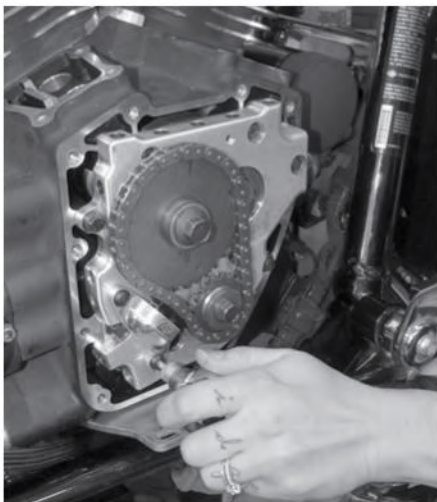
18 After John secures the stock sprockets onto their shafts using the stock hardware, he checks their alignment using a flat feeler gauge and steel straightedge. He needs and gets less than 0.010".



19 After John positions the stock sprockets in the stock outer chain with their timing dots aligned, he slips them onto their respective shafts, noting the thick spline on the sprocket shaft and flat side on the pinion shaft.



20 John secures both sprockets using a sprocket lock, the stock hardware, red Loctite, a 1/2" socket, and a 9/16" socket. He torques the pinion bolt to 24 ft.-lbs. and the sprocket bolt to 34 ft.-lbs. as per the H-D procedure.



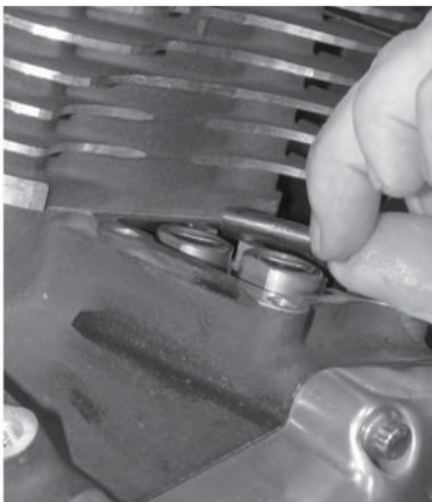
21 After prepping the new Zipper's outer hydraulic tensioner, John installs it onto the Feuling cam support plate using the Zipper's bolts, blue Loctite, and a 3/16" Allen. He torques the bolts to 90-120 in.-lbs. in stages.



22 After positioning a new gasket on the right crankcase, John reinstalls the stock cam cover using the stock bolts, blue Loctite, and a 3/16" Allen. He torques the bolts to 90-120 in.-lbs. as per the H-D procedure.



23 After pumping the new Feuling lifters with oil and coating them with lube, John drops the new lifters into their bores in the right case, so one of the flat sides on the lifter goes where the alignment pin will rest.



24 John then installs the stock alignment pins in their grooves and places new gaskets on the case.



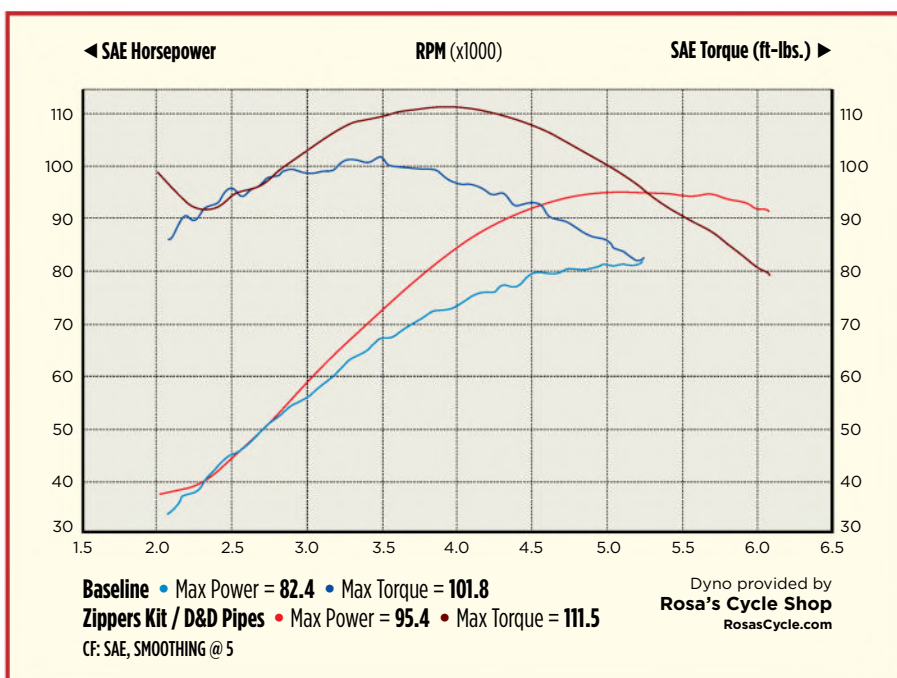
25 John then reinstalls the stock lifter covers using the Feuling bolts, blue Loctite, and a 5/16" 12-point socket. He torques the bolts to 90-120 in.-lbs.



26 After John installs new O-rings into the heads and lifter covers, he assembles his new pushrods tubes. Note the order of assembly for the tubes: lower tube, new O-ring (arrow), steel washer, spring, collar, and top tube.



27 After positioning a tube and new adjustable Feuling pushrod in the engine, John extends the pushrod using his fingers. The two shorter pushrods are the intakes, the longer ones the exhausts. They're also marked *intake* and *exhaust*.





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train control, leading to a quieter and better running engine. Much of that comes from the two-piston design, whereas the stock single-piston unit can be prone to rocking. Zipper's tensioners fit all 2007 and later Big Twins (as well as 2006 Dynas) and all earlier

continued on page 158

WHEN INSTALLING THE

Feuling-supplied O-rings into their grooves in the oil pump housing, John used some assembly lube to hold the O-ring in place.

TIPS & TRICKS

Before installing the new Zipper's hydraulic tensioners, prep them as per Zipper's instructions. Tip: you're going to need a buddy to press the tensioner against the chain to get the tensioner's second bolt aligned with its hole.

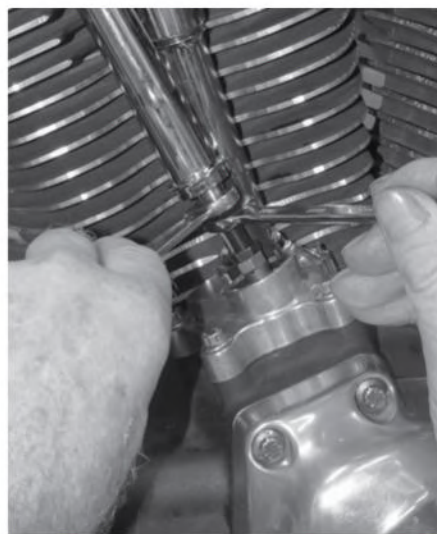
When installing the Feuling cam support plate, though we do not go into detail on how to do it, be sure to follow the Feuling instructions regarding spinning the engine to first center the cam support plate in the engine and then again to center the oil pump.

Rotate the engine so both of one cylinder's lifters are at their lowest point before installing that cylinder's pushrods.

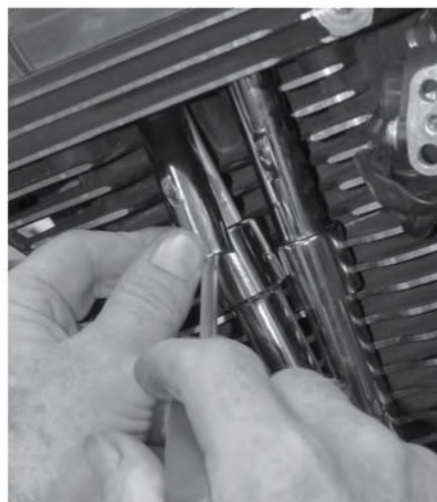
When setting up a Feuling pushrod so it can be installed over its lifter, have its middle stud fully threaded into the top part of the pushrod, and the lower section threaded fully onto the middle stud.

Once the Feuling pushrod is in place over its lifter, thread the middle section out of the top part until the pushrod is tight on the lifter and rocker arm, but you can still turn it with your fingers. Then use two 7/16" wrenches to adjust the bottom section of the pushrod as per the Feuling instructions.

Wait until you can spin the two pushrods you just adjusted with your fingers before you rotate the engine to get the other set of lifters at their lowest point for adjustment. If you don't, you'll probably bend a valve. Once those lifters have bled down, rotate the engine to check that everything spins smoothly. ■



28 After he clips the tubes out of the way, John uses two 7/16" wrenches to adjust the Feuling pushrods as per their instructions.



29 Once the lifters have bled down, John rotates the engine and does the same for the other pushrods. John then extends the pushrod tubes and pops in the top clips using a flat-bladed screwdriver.

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A touring windshield from The Motor Company for 2006 and later Dynas

NOT A BIG FAN OF CONVENTIONAL BAGGERS despite my fair share of miles on them, I go back and forth about windshields. They're great for cold weather and rain, reducing fatigue on long trips and staying reasonably presentable should the need arise. On the other hand, those large enough to afford more than minimal protection often bring trade-offs in the form of increased fuel consumption and high-speed handling quirks at the same time disrupting the appearance of a machine that, in its purest form, consists of an engine, two wheels, the parts that tie them together, and little else.

Planning a ride west to finish breaking in my newly purchased Low Rider, I gradually came to realize that, among other optional extras, a windshield would be in order. Like gravel missiles launched by careless drivers, making it from Daytona to points west and back without at least a few days of ugly weather was possible, though unlikely. And the thing is, pardon the cliché, I bought the Low Rider primarily for its purity. Of the half-dozen motorcycles I considered after deciding the time was right for a new one, it was the only one to say "Yes, I am the one." And here I go, compromising it already, planning to trade its purity for practicality with an add-on that I once scorned.

Well, sort of. I've come to appreciate windshields when

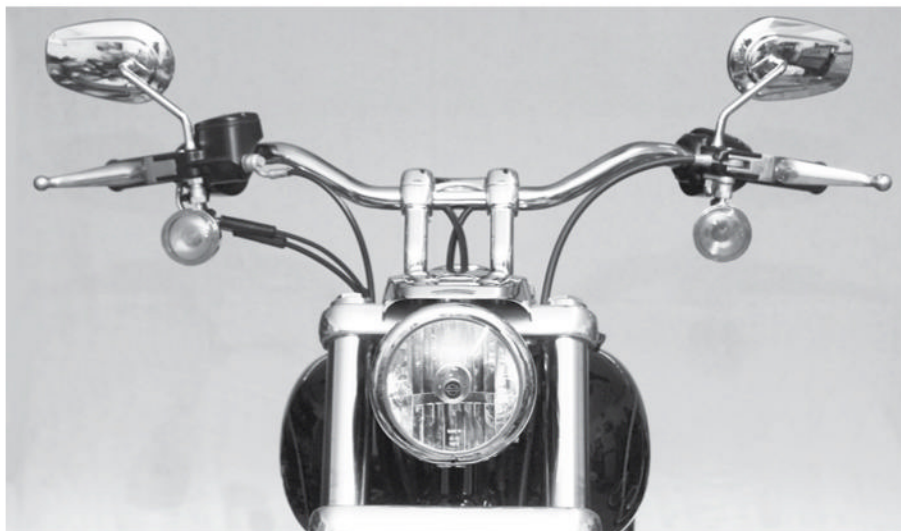
traveling, and, in reality, Harley came up with a perfect solution for the form-or-function conflict years ago with its detachable versions. After considerable browsing, I settled on a Dyna Touring Smoked windshield (#57016-06, but this part number does not apply to LD, FXDF, FXDWG, or FXDSE models). And did I mention that it's a breeze to remove without tools, and leaves no evidence behind, thanks to a quick-release cam-lock clamp system?

Accompanying my new windshield, which is 19" tall, lightly tinted, and functionally curved to reduce buffeting, was all the hardware required for the detachable installation. So, too, were what Harley terms "traditional polished hori-

TOOLS NEEDED

- Clean towel
- 1/4" ball-end Allen
- Torque wrench (in-lbs.) ■

My bare naked 2014 Dyna Low Rider awaiting its first accessory.



2 Harley suggests separating the mounting hardware into four identical groups. Each consists of a clamp (top), shoulder bolt (left), two Belleville washers (center) that are cone-shaped with concave and convex sides, and a cup washer.

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3 Place the windshield face down on a soft towel and install each hardware group fingertight in the support slots. The cupped side of the cup washer faces inward, towards the bolt head. The concave sides of the Belleville washers face each other, with the windshield support going between them.



4 Thread the bolt assembly into the clamp as shown, only fingertight at this point.



5 Installed and fully open, the clamps should look like this, as seen from above. Two go on each support.



6 Padding the front fender with a protective thick towel before installation can't hurt.



7 With the windshield positioned as shown, reach over and close the clamps to secure it.



8 Tighten each screw to 55 in.-lbs. using a 1/4" ball Allen. I had to grind at least 1/4" off the end of the hex insert for it and my torque wrench to fit behind the windshield.



9 Voilà!

zontal and vertical braces." Nothing special to some, the eyebrow-mount black headlight and exposed shock springs, also traditional, are among my favorites of the Low Rider's many nice parts; the braces complement them nicely.

I didn't expect a problem with the installation and didn't find one. It took less than an hour, including time spent reviewing the instructions. A too-brief, one-hour riding impression was positive. I would describe wind protection as good up to legal interstate speeds and beyond, with no buffeting whatsoever of my 5'10" frame (plus helmet) or shimmy shake when I noticed the speedometer indicating 100 mph for some reason. The shield places most of my upper body in calm air, my upper neck/chin area being the sole exception. It didn't take long to realize that wind deflected by my shins is responsible for ruffling my whiskers, literally, though it isn't bothersome.

One concern that goes hand in hand with this and other tall windshields is that at my height, looking over it in the event of condensation or accumulated muck will not be an option. Looking around it, however, will be. Distortion is nonexistent, thankfully, and it took only seconds for me to forget I was evaluating a part and lapse into enjoying the 60 F January ride. It's hard not to have fun when you're having fun. Regarding the ruffled whiskers, I found that resting the backs of my legs on the pegs, as in a forward-controls riding position, all but eliminated it. At this point, I'm guessing this windshield will prove the right choice, come time to head west. **AIM**



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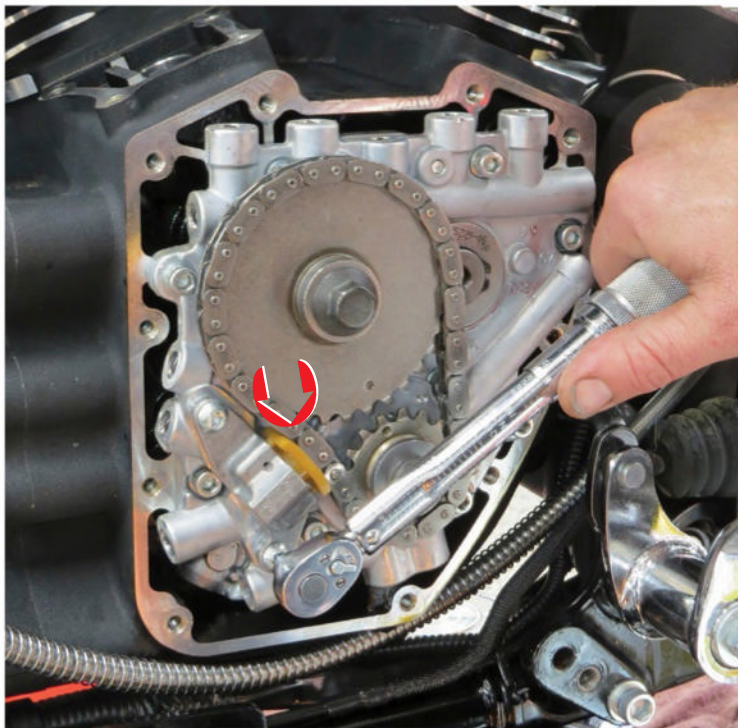
Q: My 2009 Street Bob is approaching 40,000 miles. Do I need to check the cam chain tensioners for wear or did H-D address the wear problem on the 2009 models?

GUS TINSLEY
Via Internet

A: The cam chain tensioners have been hydraulically controlled in Dynas since 2006, all other Big Twins since 2007. This and the upgraded materials used to make them have increased the life of these parts. If you've been changing the oil regularly and don't hear anything strange coming from the cam chest area, I wouldn't be too concerned. On the other hand, if you're planning a long trip, it's an easy job to pop that cam cover off and

put your mind at ease. You'll see the primary cam chain tensioner. Harley says to replace it if it's more than 0.090" worn, which is about halfway through the tensioner pad material. You can see the outer shoe while the cam support plate is still assembled. If the primary tensioner shoe is worn out, you should also change the inner one, so the rocker covers will have to come off to get the cam plate out. Or you can cut out the stock pushrods with a large bolt cutter and install adjustable ones that can go in with the engine still assembled. (Not all adjustable pushrods can do this.) While the cams are out, inspect their lobe surfaces and the bearing journals for wear or pitting.

Are you concerned about your hydraulically controlled cam chain tensioners? It's an easy job to pop off the cam cover and check them. If the outer cam chain tensioner shoe (arrow) is more than 0.090" worn, which is about halfway through, you need to change it and the inner one.



Q: I have three questions to ask. I just had my 2004 Twin Cam 88B Softail professionally rebuilt to 95" with H-D CNC-ported heads, 10.5:1 pistons, Screamin' Eagle lifters and pushrods, and Andrews 510 conversion cams so I could update to the newer 2007 H-D hydraulic chain tensioners with the newer cam plate and oil pump assembly (#25282-11). In the July 2004 issue, Donny Petersen wrote a Techline column named Oil Filtration Part I, stating that if the oil pressure exceeds 35 psi in a Twin Cam engine, the spring in the bypass valve is forced back, thereby opening an orifice, which allows excess oil back to the feed side of the oil pump, and the oil doesn't get filtered! My new 95" at start-up has 50-60 psi of oil pressure. After the

To submit a question to our H-D-certified mechanic, who has been working in dealerships for over 20 years, send in as much info about the problem and bike as possible to Hog Helpline, c/o American Iron Magazine, 1010 Summer Street, Stamford, CT 06905, or e-mail ChrisM@AmericanIronMag.com. Sorry, but due to volume, we cannot respond to requests for personal replies or to all letters.

engine warms up at idle, the oil pressure is 40-45 psi. Now that I have the new updated H-D cam support plate and oil pump installed, at what psi does the oil stop getting filtered?

In 2006-07, Donny found out that H-D changed to parent material bearings in place of the two outer cam bearings in the new cam support plate. He was going to get back to us on the longevity of this new cam plate without bearings. Have you heard of any failures with this setup?

I've also read three different articles in the past that have recommended that H-D Twin Cam hydraulic lifters should be changed every 25,000 miles. Is that true? Automobile lifters go 200,000 miles.

GREG
Hawley, PA

A: The oil filter on your Twin Cam is sent oil after the feed pump. The feed pump creates the pressure to push the oil to the engine through the filter. All the bypass valve does is prevent the pressure from building up too much. All the oil is filtered before it gets to the en-

gine. As far as parent material and lifters, the bottom line is maintenance. Regular oil and filter changes make all the difference in the world. I have customers with 50,000-60,000 miles on their bikes, and they've never had the engines apart and they're still going strong. I see them every 2,500 miles for service.

Q: I have a 2015 Street Glide Special, and I've installed Rinehart Slimline Duals with 4" Rinehart mufflers, a Dynojet Power Commander, and an Arlen Ness Big Sucker air cleaner. I want more horsepower and torque. What brand and size cams do you recommend and/or engine work? I would like to get it up to 110 hp and torque.

DAVID NORRIS
Via Internet

A: To get those numbers, I think you need to do more than just a set of cams. You'll also need higher compression pistons and a set of flowed heads. What you do depends on how much you want to spend. Harley's Stage III kit includes the

259E cams and 10.5:1 pistons and will give you about 98 hp and 108 ft-lbs. of torque. You'll need to change the valve springs for those cams, so that would also be the time for those high-flow heads. The Stage 4 kit does just that. It includes the same cams and pistons, but comes with CNC-ported heads and a larger throttle body and injectors. This kit will get you close to 115 hp and ft-lbs. of torque. Customer feedback on these kits has been very good. Numbers aside, they're fun to ride and give you the kick you want.

If you want to stick to just cams, I would recommend the Wood Performance 555. I have a set in my 2014 FLHXS. This is a true bolt-in cam, and Wood has it tuned to just what most people are looking for. I get the same numbers as the H-D Stage III kit without having to change the pistons or valve springs, and the torque curve is much wider and flatter. This cam set pulls hard from 2500 rpm and keeps pulling. You won't get your 110 hp, but it's a lot more affordable and, I think, just as much fun. **AIM**



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Misfiring Engines & Roadsters

Hot XL

Q: Dan, I have a 1999 1200 XLC. When the bike was purchased, a tachometer was added by the dealer. The tach was occasionally erratic. After I made multiple visits to the dealer, he eventually replaced the tachometer and installed a Screamin' Eagle (SE) 7500-rpm ignition module. This reduced the problem in both magnitude and frequency to the point of being an occasional nuisance. However, several years and 60,000 miles later, the problem has worsened, and now the bike sputters and dies. A second dealer told me that it's fuel related. I personally believe it's an electrical problem. I replaced the coil (stock and SE), ignition module (stock and SE), spark plug wires, gas tank, and ignition switch. The bike has an S&S Super E carb, Andrews N4 cams, Buell Thunderstorm heads, S&S adjustable pushrods, Wiseco 10.5:1 forged pistons, JIMS Hydrosolid lifters, Thunderheader exhaust, S&S speedometer adjuster, and a Badlands load equalizer. I've also disconnected the tach wire from the tach via a temporary switch when the problem occurs, but the engine still dies! All diagnostic tests in the service manual come up negative; you can't perform them on the side of the road when the problem occurs. In addition, the problem occurs at different temperatures, speeds, and weather conditions.

I would greatly appreciate any additional information either way with regard to this problem, as I currently own a

very expensive paperweight in my garage. I love my Harley (when it works), but with the current problem, I'm beginning to think about replacing it with one from a manufacturer of dependable motorcycles. This is truly a love/hate relationship, and the hate is beginning to win!

ED BRYSON
Via Internet

A: Wow, Ed! Are you into a nasty problem, and you've already done most of the normal fixes. Awhile back, I had an FX that drove me nuts with an intermittent engine breakup. I finally found out that the problem was a bad connection. At this point, the only components left for you to check are a bad VOES (Vacuum Operated Electrical Switch) that's grounding out or a bank angle (tip over) safety switch, if your bike has one. At this point, I would be checking out all the wiring and connections carefully for loose connections, bare spots, and broken wires. Another possibility is the ignition pickup in the cam cover nose cone. Did you replace it when you did the ignition box? A final thought is to try and trigger the problem while the motorcycle is running on a chassis dyno. Yeah, I know the problem usually doesn't act up when you want it to, but you could get lucky and maybe see something on the test equipment or just wiggle wires and connections and see if you can cause the problem. As a last resort, and it's something I hate to do, you could throw more parts and money at the problem by replacing the ignition with an aftermarket one that comes with all new ignition wiring and doesn't use the ignition box or stock pickup. I've used

Does your bike's engine have an intermittent misfiring condition? It could be due to a faulty ignition module and/or pickup. The fix may be to replace the ignition with an aftermarket one that comes with all new ignition wiring and doesn't use the stock ignition box or pickup. I've used Zipper's #317-105 with good results.



Got a question about a problem on your Sportster? Send your query, with as much info on the bike as possible, to *American Iron Magazine*, Sportster Corner, 1010 Summer Street, Stamford, CT 06905, or e-mail it to ChrisM@AmericanIronMag.com. Sorry, but due to volume we cannot respond to requests for personal replies or to all letters.

Zipper's #317-105 with good results. If you want a simple mechanical/electric ignition without all the bells and whistles, install a good mechanical advance unit and an ignition points replacement ignition like the Dyna #DS-6-1 or, my favorite, the Motor Sport #3154. That's all I can think of to try. I hope this helps!

Q: Dan, I just purchased a sweet, very low mileage 2008 XL1200R Sportster Roadster. For the models offered in '08, this seems to be on the high end of the scale with the sport bar, black engine, tachometer, and dual front discs standard. Can you give me any history on this model? How many were made? Why did they discontinue this model, etc.? Have there been any chronic problems reported for this model? I'm into cruising, not racing, so what mods would you recommend for optimizing midrange (2000-4000 rpm) performance?

RANDY MCCARNEY
Via Internet

A: Randy, I don't know how many of the '08 Roadsters

were produced, but it wasn't a popular model. I also don't know of any unusual problems associated with the Roadsters. I guess the reason it was dropped from production was either a marketing/sales decision or a cost issue, which is what normally drives a manufacturer to drop a model line.

As for your performance upgrade question, the engine range you listed is actually a bit low for Sportsters. Stock models with mild modifications normally run best at 2800-6250 rpm. Getting a major difference below 2500 rpm isn't easy or generally looked for. My advice is to go to a good exhaust system or slip-on mufflers (I like the Khrome Werks products) and upgrade the air cleaner to a low-restriction one of your choice. Have the computer reflashed or, better yet, install a SLM (Self Learning Module) and let it adjust to your upgrades and riding style.

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FORK STEM BEARING SWAP OUT

Motion Pro's tool makes this annoying job a piece of cake!

EVER TRY TO REMOVE THE LOWER BEARING ON A SET OF triple trees? Yup, it's one major pain in the butt! For me, the days of using a hammer, chisel, and lots of language I won't say around my kids to coach the lower bearing from its tight seat on the bottom of the fork stem are gone. Now I use Motion Pro's Steering Stem Bearing Tool (#08-0558/\$49.99). Using this tool, I get the old bearing off and the new one safely in place in about 15 minutes.

You still have to use a hammer and chisel, but only to split the outer bearing cage so you can remove the needle bearings. Then position the tool body around the inner bearing race that's still on the steering stem. Next, use a 1/8" Allen and the three setscrews at the base of the tool to

secure the tool to the inner race. Using a 15/16" wrench, simply screw in the bolt at the top of the tool to pull the old bearing's inner race off its seat on the steering stem. Done! No blood on the tool, gouges in the lower tree, or hammers flying across the garage. Then use the included bearing driver adapter to install the new bearing (after you've packed it with fresh grease, of course) just as easily.

I love tools that make a normally tedious job easy to do! **AIM**

SOURCES

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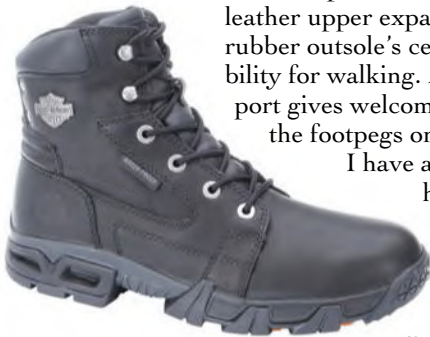
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A flex point behind the ankle couples with gussets in the leather upper expand and contract with movement, and the rubber outsole's cement construction adds to the boot's pliability for walking. A firm midsole for stability and arch support gives welcomed traction when placing your boots on the footpegs or at traffic stops.



I have a pair of Andy boots, and the 5-1/2" ankle-high shaft and full-length cushion sock lining make it feel almost as if I'm wearing my favorite house slippers. A special membrane keeps the Andy waterproof and breathable, making this my go-to warm weather boot. However, the

venting is so good that when the temperature drops drastically, my feet get too cool!

The Andy boots are easy to slip on and off, and tying the webbed laces requires no wraparound the ankle to do so. As a bonus, the boots are comfortable when I drop my bike's sidestand until it's time to saddle up to resume the ride. Sizing is in line with my normal shoe size, and styling includes a small metal medallion on the ankle. It doesn't get much cooler than that. **AIM**

SOURCES

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STILL RIDING Years after I bought a 1947 Indian Chief for \$100 in 1955, I still ride a 1999 Harley-Davidson Heritage Softail at age 75.

LLOYD DEAN WHITELEY
Joppa, MD

To see the photograph taken of Lloyd with his 1947 Indian Chief in the late 1950s, flip to Memories on page 170.



Got a bike you think belongs here? If so, send a few high-resolution (300 dpi at 8" x 8" minimum) images to Letters@AmericanIronMag.com or *American Iron Magazine*, 1010 Summer Street, Stamford, CT 06905.

☒ EXHAUST
☒ AIR CLEANER
☒ BIG BORE KIT
☒ CAM

THE NEXT GENERATION

As a longtime subscriber, I wanted to share this photo of my grandson Peyton on his "Harley" next to me on my 2007 Ultra Classic. I'm certain Peyton will be a future *AIM* reader as well.

JIM DELEO

Tampa, FL



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HIM & HER It all started at the 2005 Milford Oyster Festival. I was just recently married, and my wife, Shelly, and I walked by the local Harley dealer's tent and I just stopped. I said "Wow, those are sweet." She said "Why don't you get one?" Inside of one week, I was back in the saddle.

We initially rode two-up, but 10 months later decided that the Softail was just not enough for us, and we moved up to an Electra Glide Classic. My wife loved to be on the bike as a passenger, however, she was secretly planning her escape to her own saddle by taking a motorcycle safety course. In 2007, she started her solo journey, and we have since evolved as riders through seven Harleys, three for me and four for her.

JIM ROBERTS
Connecticut



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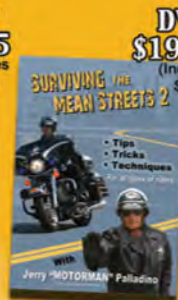
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HER & HIM My husband currently rides a Sedona Orange 2011 FLHX, and I ride a 2014 Softail Deluxe. I wanted the 103", but I still loved my 2011 Psychedelic Purple and Vivid Black paint set. So when I bought my 2014 Softail in Vivid Black, I had the dealership switch the 2011 paint set to the new 2014 bike.

We haven't looked back since! So many miles have been logged with trips to various HOG rallies, Rolling Thunder in DC, Americade in New York state, the White Mountains of New Hampshire, as well as our local beach and back roads of Connecticut.

SHELLY ROBERTS
Connecticut
AIM



THE JIMS DAILY NEWS

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WIDGETS • Compiled by Steven Wyman-Blackburn

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All claims and specifications are those of the manufacturers. Submissions are welcome and should include a color digital (300 dpi jpeg) image, detailed description, and suggested retail price. Send submissions to Widgets, *American Iron Magazine*, 1010 Summer Street, Stamford, CT 06905, or Widgets@AmericanIronMag.com.

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Information Superhighway

Dakota Digital launched its new MVX-2011 electronic instrumentation system for CAN/bus to replace 2011 and later Softail, 2012 and later Dyna, and 2014 and later Road King models with 4-1/2" or 5" tank-mount gauges. The MVX-2011 plugs directly into the stock wiring with no modifications needed. Additional information can be displayed in the digital readout including fuel range, clock, odometer with two resettable trip meters, cylinder head temperature, turn signals, high beam, all warning and cruise lights, 1/4-mile race info, and gear position display. The unit also includes an oil pressure gauge and oil temperature gauge (must purchase senders separately). Two bezel options, four backgrounds, and 31 user-selectable colors are available. \$499.95. Info: Dakota Digital, 800/852-3228, DakotaDigital.com.



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WIDGETS



Flaring Up Again

The FLARE windshield from Klock Werks is now available in the Sport Low 9" model for 2015 and newer Road Glides. The Sport Low 9" has a streamlined design that offers radical curves and a sportier stance. It complements the lines of the new Road Glide fairing with a more aggressive profile and aids stability and handling with improved air management. It's available in Dark Smoke and black options. \$239.95. Info: Klock Werks Kustom Cycles, KustomBaggers.com.



Cross Weather Tour

Victory Motorcycles' Tour jacket was made for all-weather riding. Able to be worn for winter excursions, the Tour is windproof and waterproof, and has a fleece liner that can be removed for warmer weather. The jacket's shell features abrasion-resistant nylon supported by CE-approved shoulder and elbow protectors. With various adjustability options including stretchable waist inserts and adjustable cuff closures and sleeve snap straps, the jacket includes reflective panels and piping for extra visibility. The jacket has six pockets in total, four exterior and two interior, and has hidden air vents. The Victory Tour jacket is available in S-3XL sizes for \$339.99. Info: Victory Motorcycles, VictoryMotorcycles.com.

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Smooth Softail

High-performance, tunable suspension is now available for the Harley-Davidson Breakout. Progressive's 422 Series shocks are a fully adjustable Softail shock with variable ride height and spring preload settings. Designed and tested to allow a rider to easily tune the suspension to fit the bike as well as his riding style, all 422 Series shock absorbers are wrapped in a show-chrome cover and include a pair of progressive-rate coil springs and nitrogen-charged monotube dampers. Info: Progressive Suspension, 877/690-7411, ProgressiveSuspension.com.



Big-Bore Baggers

Delkron Manufacturing introduces its Twin Cam Touring Elite big-bore cylinder kits. These cylinder and piston kits are manufactured specifically for heavier Touring bikes, which run hotter and see much higher mileage. The cylinders feature larger-than-stock fins and a 4.500" O.D. steel liner. The next key element is the Wiseco-developed, armor-plated, moly-coated piston with 1/16" top, 1/16" second, and 3/16" heavy-duty ring pack. The kits are currently offered in 113", 124", and 131" configurations. Black, \$1,237.31; natural, \$1,212.08. Info: Delkron, 866/335-5766, DelkronMFG.com.

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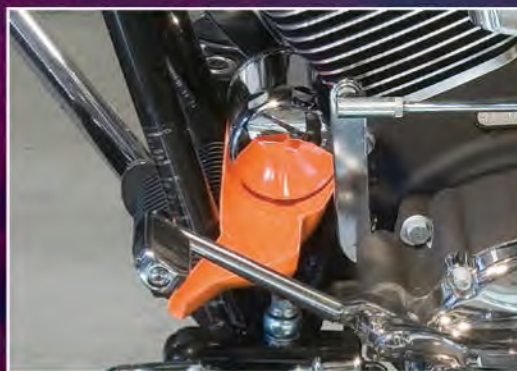
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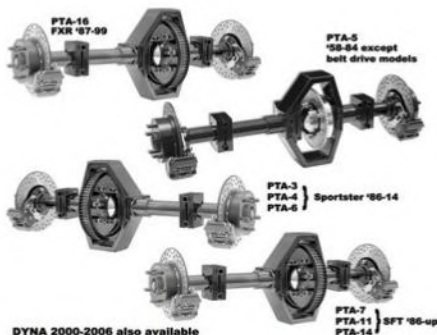
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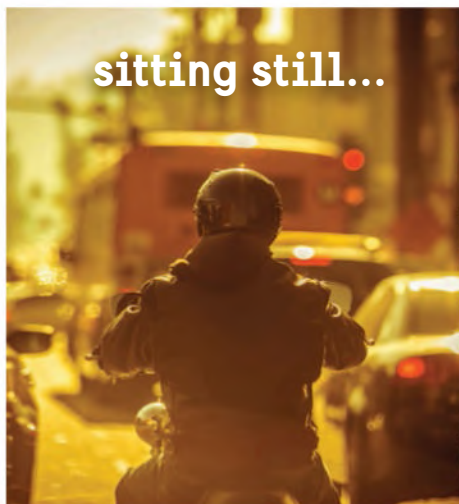


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The Billy Club riding vest from Crank & Stroker is a flat, black vest made from durable welding leather, featuring a cowhide leather inner collar. A heavy-duty zip front closure with snap-down storm flap prevents it from blowing open at high speeds. Finished with solid black satin lining, the vest has two waist pockets, two chest pockets, and two conceal carry pockets. \$140. Info: Crank & Stroker, 888/441-3331, CrankAndStroker.com.



Clutch Play

The Pro Clutch from Rivera Primo offers scalability for those who like to upgrade their motors a little bit at a time. If you start off with the basic Pro Clutch and pump up the engine a bit, you can then change out the diaphragm spring to one of its higher-performance springs. If you then take that motor to new levels of horsepower craziness, then you can simply buy the TPP variable pressure clutch assist and pop that on the Pro Clutch. The TPP variable pressure clutch assist is a mini lockup specifically manufactured for the Pro Clutch, and has been tested to hold in excess of 250 hp. Info: Rivera Primo, 562/907-2600, RiveraPrimoInc.com.



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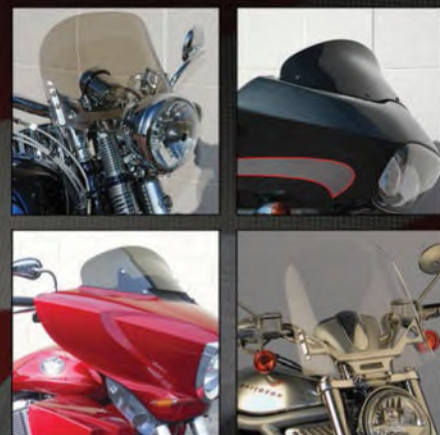
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TECH

continued from page 152

Twin Cams that have been converted to a hydraulic tensioner system.

When it comes to performance engines, it's all about finding and removing the weak links, and that's especially true when it comes to motorcycles that will see a lot of mileage like our Switchback. That's why we went with a Feuling HP+ Series oil system kit (#7074/\$799.95). This kit includes a new aluminum cam support plate, high-volume aluminum oil pump, and a complete hydraulic roller lifter and gasket kit. The kit increases oil pressure, oil volume, oil flow, and scavenging and helps to eliminate wet sumping and oil blowby that end up in the air cleaner. Unfortunately, we weren't able to test the HP+ oil system on its own, but Feuling claims as much as a 35-degree engine temperature drop.

To complete the installation, since we left the rocker boxes alone, we also got a complete set of Feuling's HP+ adjustable pushrods (#4065/\$199.95). The HP+ pushrods can be adjusted to achieve maximum valve lift, which is perfect for our new cam setup. The increased stiffness and rigidity over stock improve overall valvetrain rigidity, which allows better contact and more efficient power distribution from the lifters on the bottom to the rockers on the top. That means that the full amount of horsepower and torque can be realized from any engine, stock or otherwise. Remember, per-

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formance is all about finding and replacing the weak links.

To complement this cam profile, the techs at Zipper's recommend using a Fat Cat 2-into-1 exhaust with a perforated, wrapped baffle. For a worked 103"-113" motor, like the one in our Switchback, D&D recommends its perforated, wrapped baffle, which has a 2-1/2" core as opposed to the louvered baffle, which is 2-1/4".

The end results make using the word *weak* all but impossible when referencing our Switchback. The numbers speak for themselves, and we pulled 13 hp and 10 ft-lbs. of torque more power out of the motor, bringing the total output to 95.4 hp and 111.5 ft-lbs. of torque. Be sure to check out the accompanying dyno chart to see how smooth both power curves are and where the max numbers come into play.

John at Mad Dog Performance in Port Chester, New York, did this install for us. Mad Dog is a great place to go for two-, three-, or four-wheel custom work. The skilled mechanics at Mad Dog do all sorts of top-notch custom and performance mods. Once the install was done, we trucked the bike down to Rosa's Motorcycle Shop in Huntington, New York, for tuning. Andrew Rosa and his crew use TechnoResearch's Tune Builder in conjunction with the same company's AutoMap. AutoMap systematically reads what the engine needs at every rpm and throttle setting and makes the needed fuel changes, as per Andrew's settings, as Andrew runs the bike on his dyno. This feature makes dialing a bike's fuel maps a much quicker process, which saves the owner dyno time. Of course, once the tuning was done, Andrew gave us the final dyno numbers. **AIM**




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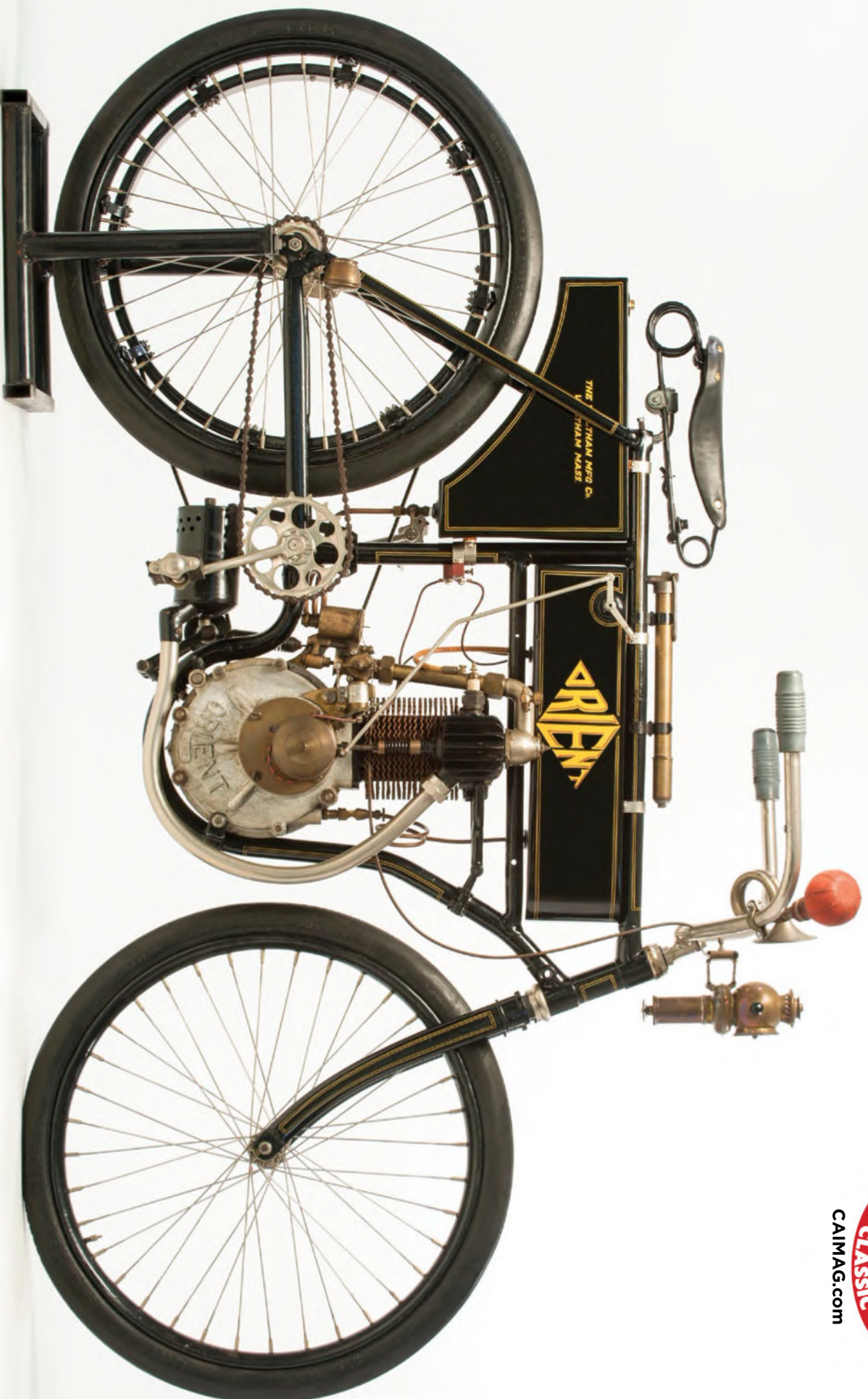
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EARLY PIONEER MOTORCYCLES ARE INTOXICATING IN their beauty, style, and grace. They're often revered by collectors for their importance to the evolution of our modern-day motorcycles. Early pioneer motorcycles evolved when people like Charles Metz ingeniously mounted one of the early internal-combustion engines into a bicycle frame, and in the process, personal transportation inched forward ever so slightly.

Charles was born in 1863 during the Second Industrial Revolution, a period recognized by most historians as taking place from about 1840 to 1870. An engineer, mechanic, inventor, bicycle racer, salesman, and entrepreneur, he worked many jobs, including selling insurance for the Orient Fire Insurance Co. of New York. According to records, Charles moved to Massachusetts in 1893 when he began designing racing bicycles for the Union Cycle Club. He later was part of a consortium of men who started the Waltham Manufacturing Company (WMC) in Waltham, Massachusetts.

WMC produced bicycles, plus it imported De Dion-Bouton motors from France. These early internal combustion engines actually functioned as advertised and could be used to power everything from bikes to tricycles to an early car known as the Quadra Cycle. In addition to the rights to distribute these engines, WMC also obtained the patent rights to manufacture engines of its own, using the De Dion design as a guide.

By 1899, WMC developed the first "motor cycle" as it was called in company advertisements of the day. In the process, WMC established itself as America's first motorcycle manufacturer. Charles clearly borrowed the name from his previous employer, calling his new bikes Orient motorcycles. Similar motors also powered light-duty cars that he began producing in 1902. These cars were known as Orient Buckboards.

Fast forward to the 1960s when Mike Parti, motorcycle enthusiast, championship motorcycle and sidecar racer, master mechanic, world-class machinist, legendary Los Angeles character, and locator of old motorcycles for himself and others was in search of more rusty gold. His friend Bud Ekins was also famous for his racing exploits, one being a stunt double for Steve McQueen. Bud — the guy who actually made the spectacular jump over the barbed wire fence in the movie *The Great Escape* — invited Mike to take a drive to Volcano, Califor-

nia, to see a fellow with a motorcycle museum. By chance, the museum owner was interested in selling some of the collection. The three-car garage/museum indeed contained many old machines, this 1902 Orient being one of them. The old bike was in rather sad shape and had an Orient Buckboard motor rather than the correct motorcycle engine in it. Bud bought a couple of the bikes, Mike bought the Orient, and all of the machines were loaded into the truck for the return trip back to Hollywood. Over time, Mike was able to acquire the correct motor from Bob McClean, past president of the Antique Motorcycle Club of America (AMCA) to begin the proper restoration.

BEING A MACHINIST, MIKE DOVE INTO THE RESTORATION full force. During disassembly, he discovered a holed and seized piston, so he freed it and welded in a new crown. The rest of the motor was in relatively good shape, so he funneled his efforts to search for the correct French La Mar carburetor, which as you can imagine are as rare as hen teeth. Well, Steve Wright, the famous motorcycle author, historian, restorer, and good friend of Mike's, found one in England at an auto jumble (Brit speak for flea market), complete with its unique barrel-valve design — what are the odds of that?

Mike fabricated the gas and oil tank — there's nothing he can't do — and as you look at the photos, note the battery and coil are behind a sliding access door while the fuel is stored in the rear-angled tank. The twist grip actually adjusts the fuel/air mixture so speed is regulated by retarding and advancing the spark.

The original seat was re-covered, and the original handlebars still sit atop the front fork. Mike indicated that the wheels and tires were a real challenge. Re-production tires were not available in the 1960s, so he made up a jig by cutting a rim in half, chucked it, and kept expanding it for weeks until the new tires stretched enough to fit. How's that for a trick?

A friend of Mike's, the famous pinstriper Von Dutch, had previously painted and striped an Orient for Bud, so Mike copied that paint scheme for his machine as well. The original pedal cranks and linkage parts were all nickel-plated, and the bike is now jewel-like in appearance. Further research indicated the bike was originally sold through the local Los Angeles Orient dealer, so the fact that it

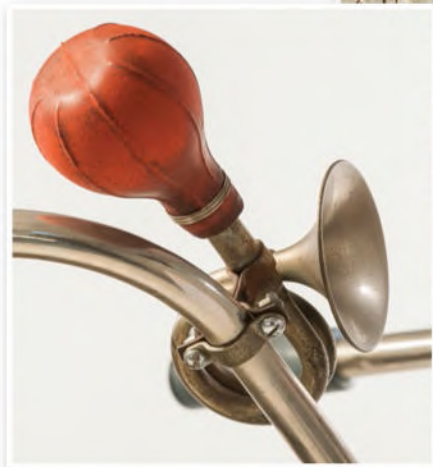


was discovered in Volcano, California, seems to support that claim.

The bike runs well, and Mike says it's possible to do 35 mph if you're brave enough. It's easiest to pedal-start the bike while it's on its stand and the coaster brake in the rear wheel slows it to a stop — barely! Mike says motorcycles have been one of his lifelong passions, and working on them has, in his words, "kept me out of San Quentin!"

Fast forward to 2014, and Mike Bahnmaier, world-class Harley drag racer, dealer (he owned Harley-Davidson of Salina and Alefs Harley-Davidson), and all-around great guy, was interested in expanding his collection of vintage motorcycles. He reached out to my buddy Don Whalen, noted collector and motorcycle expert, for help in locating a pioneer machine with great history. Don keeps track of where all the great bikes are and knew the whereabouts of Mike Parti's old Orient. Mike Bahnmaier was excited at the prospect of this rare, early pioneer motorcycle joining his collection, and the fact that a hero of his, Mike Parti, had owned and restored it just made the deal even more enticing. A deal was brokered with the present owner, creating a win-win for all parties, and Mike Bahnmaier became the proud new owner of this historic piece of motorcycle history.

Orient is credited with being the first motorcycle brand in the US, and Waltham Manufacturing Company went on to produce everything from brass-era cars and motorcycles to watches and stoves. Charles Metz holds a lofty place in the story of motorizing America in the early days of our country's evolution from horsepower to brake horsepower! **AIM**



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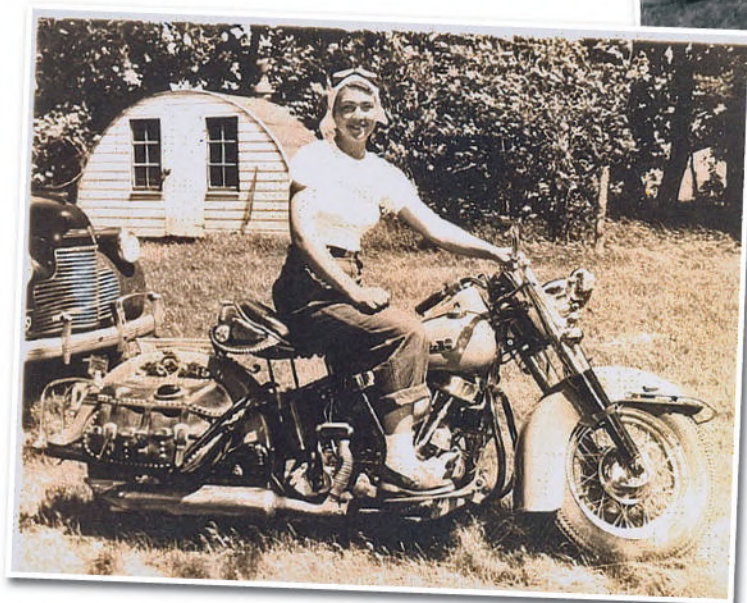
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B&W TRAILER HITCHES

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Lloyd Whitely sent in this 1955 photo of himself at 17 years old with the 1947 Indian Chief he had just bought in West Virginia for \$100. Lloyd also sent in a shot of himself with his 1999 Softail Heritage, which you can see in Snaps.

LLOYD WHITELY
Joppa, MD



Rock Branderhorst sent us this 1950 photo of his mother, Neva Nelson, when she was 20 years old with the 1949 Panhead she bought new in Albert Lea, Minnesota. Rock tells us that Neva's first bike was a 45" flathead that she got when she was 19. Rock also tells us "Mom told me that her motorcycling days, though they only lasted for a few years, were the best years of her life." Rock also pointed out Neva's white cloth cap, which was very stylish back then.

ROCK BRANDERHORST
Owatonna, MN

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